The Builder.

No. CLXXVI.

SATURDAY, JUNE 20, 1846.

ON Tuesday last, his Royal Highness Prince Albert laid the first stone of the new Laboratories about to be erected under the able superintendence of Mr. James Lockyer, architect, at the back of the house, on the north side of Hanover-square, occupied by the College. The Prince has shewn particular interest in the establishment of this very important institution, which originated in a conviction felt by many eminent agriculturalists, that, in order to understand the economy of vegetable life, and to place the practice of farming upon a scientific basis,—greater encouragement should be afforded than hitherto to the study of *Organic Chemistry*. Agriculture, medicine, and many collateral sciences, mainly depend upon organic chemistry for their future progress. There is, indeed, scarcely any art or manufacture, which is not susceptible of improvement by the aid of the scientific chemist.

In our own particular department, chemical science is of the greatest importance, and the establishment of a means of advancing it must be regarded with interest. The investigation of the nature of cements and plasters, the composition of pigments and varnishes, the chemical action of one material on another, the effect of atmospheric influences, decomposition, and decay, are some amongst the many instances in which it applies in the science of building. In the application of chemistry to the manufacture of glass, too, and the production of gas, we are considerably interested, and we shall hope to find many young architects, and young engineers amongst the students in the new college. Every facility should be afforded to young men wishing to pursue this study, and strong efforts made to induce greater attention to it, throughout the country, than is now generally paid to it.

A numerous attendance of distinguished men on Tuesday, shewed the interest with which the institution is viewed by those best able to judge of its importance.

The area around the stone was boarded; commodious standings were constructed on either side, and the whole was protected by a huge awning, stretching down to Oxford-street, where the front of the new building will appear.

When the prince had deposited the coins, spread the mortar (in his most approved manner), and set the stone, Mr. Lockyer having previously exhibited the drawing, the Earl of Clarendon addressed his Royal Highness at some length, on the services he had rendered to the institution, and on the advantages which might be expected from its establishment. This institution, he thought, was destined to promote that science the want of which had been long and severely felt by this country, and was daily becoming more apparent. His lordship, after commenting upon the beneficial effects likely to result from the establishment of these laboratories, and the patronage of his Royal Highness, concluded by observing, that he was confident such patronage would stimulate every member and student in the school, to elevate the character of the college by their zeal and assiduity. The noble earl made a very eloquent address: we must, however, take one exception to the tone of it, which would have left the impression on the mind of any person not otherwise informed, that England had no chemists, and had done nothing for chemistry,—an opinion which needs no refutation on our part.

Lord Clarendon having concluded, the Bishop of Oxford ably advocated the institution, maintaining that philosophy and religion had no battle to fight; that the voice of nature (her phenomena) was the voice of God, and that by learning properly to understand that voice, we became better acquainted with his power and goodness.

The prince replied, that it had given him great pleasure to assist in the establishment of the college, as he was satisfied that its operations would tend to advance science, art, commerce, and agriculture. He would always be found ready to give his assistance, and had no doubt that when its objects and intentions were better known, the public would come forward to support it.

The inscription on the stone, as follows, was then read, and the prince departed:—

THIS STONE
WAS LAID BY HIS ROYAL HIGHNESS
PRINCE ALBERT,
FOR THE LABORATORIES OF THE
ROYAL COLLEGE OF CHEMISTRY,
IN PRESENCE OF THE COUNCIL AND MEMBERS,
JUNE 16, 1846.

The new buildings will consist of three laboratories in the basement, ground, and first floors, each being 33 feet by 38 feet in the clear. It is intended when the funds of the college permit, to add other laboratories to those now about to be erected, for which preparation is made in the design. The interior fittings and the ventilation are not yet definitely arranged. As regards the latter, flues will be formed communicating with underground culverts, to be worked either by the furnaces, fan, or shaft. When the building is more advanced, we may revert to this very important part of the arrangement.

The Oxford-street front presents a rusticated basement with doorway in the centre and two semi-circular headed windows on each side. Above is a range of six three-quarter Ionic columns, carrying an entablature with windows in the spaces between them. The front is low, in consequence of a restrictive clause in the lease, and would be improved by the addition of some slightly elevated feature in the centre, above the cornice.

The original tender made by Mr. Grissell amounted to 3,100*l.*, but has been reduced to 2,180*l.*, the funds available for the purpose not justifying a larger expenditure, and for this sum the works will be executed by him.

We repeat our expression of best wishes for the perfect success of the new college; and that it will create a body of scientific chemists, amongst the classes engaged in arts and manufactures, and thus confer extensive benefits on the country. We are glad to find it is provided, that a student who manifests an aptness for chemical research, and who distinguishes himself by diligence, may, after his second session, on the recommendation of the professor, be admitted by the council to continue his studies in the laboratory without the further payment of fees. We hope that arrangements will be made to admit students of humble means; and can hardly avoid thinking with Prince Albert, that when the objects and intentions of the college are better known, the public will come forward to support it.

THE LATE MR. JOHN LE KEUX,

ARCHITECTURAL ENGRAVER.

IT may be safely said, that no English engraver has done more to enhance the fame of his art, and give peculiar interest and value to that branch which he professed and practised for so many years than the late JOHN LE KEUX. Rooker and Lowry had, before the commencement of his career, produced excellent plates, and the latter had practised several novelties and improvements, by the aid of machinery and skilful tooling; but Le Keux not only surpassed those talented artists, but gave to geometrical architectural plates, and subjects of architectural *antiquities* in particular, beauties, effects, and excellences, which were unknown before his time.

It is therefore a gratifying task to put on record some facts and observations on the life and talents of this eminent artist and estimable man, not merely in testimony of his professional merits and personal worth; but of their influence on that peculiar branch of art which he prosecuted with zeal and ability for so many years.

John Le Keux was born on the 4th of June, 1783, in Sun-street, London, where his father was established as a pewterer, and was in the habit of making the common pint and quart pots for publicans. On these his eldest son, John, practised the chaleographic art, by engraving ciphers, names, signs, and devices, for the respective proprietors. In this way he soon became an useful and profitable assistant to his parent, who, to secure his services, had him articled to himself as an apprentice. The father and son were of uncongenial minds; the youth was ambitious, ardent, high spirited, and generous; the parent cold, indolent, and heedless. Such contrarieties could not coalesce, and the former embraced the first opportunity of detaching himself from the latter; and when about seventeen years old, placed himself in the studio of James Basire, who then had in his house several pupils, including Le Keux's younger brother, Henry.* At the time the Le Keuxs were with him Basire was a popular, though not a very skilful engraver. He was extensively employed by Mr. Gough, Mr. Nicholls, and the Society of Antiquaries, for their respective topographical and antiquarian publications; and on their plates his pupils were systematically and almost mechanically engaged. There was little done to arouse their emulation, or to lead to fine and skilful execution. Plate after plate was brought before the public without the least appearance of advancing the style and character of art, or giving novelty and beauty to engraving. The drawings were mostly by Schnebbelie and Carter; the latter of whom produced a valuable and interesting series of plans, elevations, and sections, of the abbey and cathedral churches of St. Alban's, Bath, Exeter, Gloucester, and Durham;—and these certainly afforded much instructive employment to the pupils, and no doubt, were the means of inspiring John Le Keux with a taste for subjects of that character. To quote from a brief notice in the Art-Union,—"refining upon the manner of his master, he formed for himself one combining both truthfulness and taste of delineation, in a degree almost unprecedented;—one equally removed from dry, mechanical, and mere painstaking correctness, on the one hand, and from that sort of freedom which is more spirited than scrupulous, on the other. In almost every production of Le Keux there is striking evidence both of his perfect intelligence of, and his *con amore* sympathy with, the subject; and without them mere exactness of imitation will accomplish comparatively little in architectural drawing;—will at the most give only approximations to what is professed to be described. Such engravers and draughtsmen as John Le Keux and his brother, as Mackenzie and Cattermole, all at once advanced architectural illustration to a rank in art which it had never before reached in this country. The beauties of gothic buildings, previously seen,—so far as regards the representations of them upon paper,—chiefly through the mists and fogs of most wretchedly prosaic engravings, burst forth to view in their real splendour, when lighted up by the warming as well as illuminating rays of taste so flung upon them."

Le Keux remained as a pupil with Basire

* George and William Cooke, and John and Richard Roffe, were also pupils of Basire.

about four years. Some of his earliest plates, after quitting him, appeared in the *Beauties of England and Wales;* and in 1808 he was employed upon the plates of *Britton's Architectural Antiquities*, the second volume of which was then in course of publication. From that time the history of John Le Keux is intimately connected with that of Mr. Britton's numerous and valuable works of ancient ecclesiastical architecture. During the progress of the *Architectural* and the *Cathedral Antiquities*, he engraved more than 250 plates for those two works alone. The execution of the earliest of these not only gave great satisfaction to the author and his partners in the *Architectural Antiquities*, but excited much attention amongst the lovers and patrons of that class of literature. Indeed, it tended in a great degree, if not to originate, at least to give a decided character to the other and subsequent work, the *Cathedral Antiquities*. To secure Mr. Le Keux's cordial co-operation, and to give him a permanent interest in the success of the last-mentioned work, he was admitted to a share in its property and profits, with the author, Messrs. Longman and Co., and Mr. Josiah Taylor, the late respected publisher of many architectural works. Le Keux engaged to engrave a certain number of plates in each year, at prices proportionate to the quantity of work bestowed upon them; those in the volume illustrating *Salisbury Cathedral* being named as specimens. From drawings by Mackenzie and Baxter, Mr. Le Keux executed sixteen plates of that cathedral, which were so much admired and praised by critics, artists, and connoisseurs that, whilst they produced both envy and opposition,* they gave to the artist at once a character and name, and proved how materially the efforts of the draftsman could be aided by a skilful and tasteful engraver. Many instances might be referred to in the subsequent progress of the *Cathedral Antiquities*, as well as in other works, in which the chief excellence of the illustrations is due to Mr. Le Keux. That work was not brought to a close till the year 1835; but during its progress the same engraver had executed thirty-one plates for Britton's *Picturesque Antiquities of English Cities* (4to. 1830), seventy-eight for the *Public Buildings of London* (from drawings by A. Pugin, 8vo. 1825-8), and forty for Britton's *Dictionary of Architecture and Archæology;* making, with other plates in similar publications, upwards of 400 plates for works jointly undertaken by the same proprietors. It was also in connection as a partner with Mr. Britton and Mr. Pugin that Le Keux engraved fifty of the beautiful plates, illustrating the *Architectural Antiquities of Normandy*, (4to. 1827), and many of those in *Pugin's Specimens of Gothic Architecture*.

In Mr. J. H. Neale's work on *Churches*, all the plates were engraved by Le Keux; and some of his best engravings are also to be found in Neale and Brayley's *Westminster Abbey*, Blore's *Sepulchral Monuments*, and the fine topographical works of George Baker, and others, had also the advantage of his talents. In fact, his name is to be found in all the best publications illustrative of the architecture of the middle ages that appeared in his time; and many of his engravings can scarcely be surpassed in spirit, brilliancy of effect, and truthfulness of delineation.† Mr. Le Keux's personal industry could scarcely be surpassed. It is sufficiently proved by the immense number of his plates. He had but few pupils, and often occupied himself in his profession sixteen hours a day. Challis, Turnbull, Tingle, and his son, Mr. J. H. Le Keux, have been the most successful among those who studied under him.

In 1833, Mr. Le Keux commenced the publication of the *Memorials of Oxford*, in which he and Mr. Parker, of Oxford, were joint proprietors. In that work the many architectural beauties of the city and university,—admirably drawn by Mackenzie,—were still more exquisitely engraved by Le Keux. It was published in numbers (8vo. and 4to.) periodically, and completed in 1837,—the 50th number, to conclude the work, being published in that year. The *Memorials* comprise 100 plates; and 200 wood-cuts, by Jewitt, of Oxford. The letter-press was written by the Rev. Dr. Ingram, the learned president of Trinity College.

About this time we find him engaged on the *Churches of London*, by Mr. George Godwin, for which publication he engraved nearly all the plates.

On the completion of the *Oxford*, Mr. Le Keux turned his attention to the sister university, which he proposed to illustrate in the same manner. Mr. Parker had purchased his interest in the former previous to its completion; and the success of that work led Mr. Le Keux to decide on publishing the *Memorials of Cambridge* entirely at his own risk. This undertaking was less extensive than the Oxford, and was completed, after many delays, caused by the engraver's serious and painful illness, in 1843, by the publication of the thirty-eighth number. The two volumes, containing seventy-six plates, are in no degree inferior to any of Le Keux's previous works. The jealousy of local booksellers, and other annoyances incidental to the mode of publication which he had adopted, it is believed caused him to regret his determination; but he persevered until the work was finished, though Messrs. Tilt and Bogue have since become the proprietors of it. The letterpress was written by Mr. Thos. Wright, F.S.A., and the Rev. H. L. Jones, F.S.A.

The distressing illness which deprived the public for some years towards the close of his life of the labours of Mr. Le Keux, has been adverted to. Under this affliction he was soothed by the affection of his son-in-law and daughter, Mr. and Mrs. Bergmann, with whom he resided, near Maidenhead. He occasionally resumed the exercise of his profession, but never to any great extent. After a brief illness, he died on the 2nd of April last, aged 62, at the residence of his son, Mr. J. H. Le Keux, who manifested much dutiful affection and attention, and he was interred in the cemetery of Bunhill-row, London. B.

* The Verger of Salisbury Cathedral, Mr. Dodsworth, who had published a small "Guide" to the church, was induced by the persuasions of an artist, who was *at the same time* employed to make drawings for Mr. Britton, to undertake a work precisely similar, and in direct opposition, to the *Cathedral Antiquities*. From local connection, great activity, and personal canvassing, Dodsworth obtained a long and respectable list of subscribers; but the plates in his volume were far inferior to those in Mr. Britton's, and he became involved in expenditure so far beyond his anticipation, and in labours and anxieties so harassing to an irritable temperament, that instead of advancing his fortune or happiness, his undertaking seems to have injured both. The letterpress accompanying the volume was from the pen of the judicious and learned Mr. Henry Hatcher, of Salisbury, who has since written a most valuable history of that city. An account of the rival works of Dodsworth and Britton would disclose much curious matter in the annals of authorship and the arts, and add another gloomy chapter to D'Israeli's *Quarrels of Authors*.

† The engraving of the font in Walsingham Church, Norfolk (Britton's *Arch. Antigs.* vol. iv.), and the door-way to Redcliffe Church, in the same volume, excited much attention and admiration at the time they were published, for their exquisite fidelity and brilliancy of effect.

IRON CONSERVATORY IN THE BOTANIC GARDENS, REGENT'S PARK.

A very few years have sufficed, with good management, to transform a piece of nearly barren land, in the Regent's Park, into luxuriant gardens, affording a retreat as quiet, retired, and beautiful, as if fifty miles from smoky, flaring London. A pleasant inequality of surface, well-assorted trees, and pretty piece of water, assist in varying the character of the gardens in different parts. The view on ascending the mount, formed on the eastern side of the ground, is charming, and the whole arrangement is creditable to those concerned in the management.

A new conservatory has been constructed under the direction of Mr. Decimus Burton, and is now nearly finished. Although of large size, it is in reality only half the centre part of the proposed building, to be called the Winter Garden, which will, when complete, afford a delightful resort for the numerous subscribers, and enable them to enjoy the luxury of the parterre at all seasons.

The building is constructed of iron, mostly wrought, the pillars and guttering alone being cast. The water from the roofs is conducted by the internal pillars, to drains communicating with large tanks under ground; from whence it is pumped up for the supply of the house. The house is heated by warm water, circulating partly in pipes and partly in shallow troughs, the latter being placed near the glass, and containing numerous registers for the emission of steam, when required. The pipes are arranged beneath the surface, in brick channels, and have large outlets for the hot air, with air ducts at intervals, to create a current, and prevent the too sluggish action of the hot air in the drains. The boiler-house, or furnace-room, is below ground, at some distance from the building. The boilers used by the contractor are those of Messrs. Burbidge and Healy.

The structure is ventilated by sliding lights in the roof, acted on by a simple contrivance, which opens and shuts the whole simultaneously. The house is glazed with sheet glass, 21 oz. to the foot, in long lengths. There is a lean-to house at each end of the building, to serve as abutments; these will be removed when the structure is continued.

The present building contains eleven thousand two hundred and fifty feet superficial. It was erected by Mr. Turner, of the Hammersmith Iron Works, Dublin, and cost about 6,000*l.*

The winter garden, when completed, will measure fifty thousand nine hundred and eighty-two feet, superficial area, or upwards of an acre. The outline of the roofs (an obtuse pointed arch), when seen inside at the intersections, is not wholly unobjectionable, but was doubtless well considered as relates to strength, and the transmission of the sun's rays.

PLASTER AND CEMENTS.

BUILDINGS OF MIXED MATERIALS.

Sir,—Having given considerable attention to the nature and properties of plaster of Paris and cements, as applied to building purposes, you will probably allow me a space in your valuable miscellany, to make a few scattered remarks relative to the observations made on French plaster by Mr. De Lassaux, at the meeting of the Institute of Architects, noticed in the The Builder of the 16th of May last.

Mr. De Lassaux stated, that "in France, plaster is employed extensively for external works, and endures well; whereas that in England will not stand the weather." Are we to infer from the latter portion of this sentence that the English gypsum, from which the plaster of Paris is manufactured, is inferior to the crude material of France,—and that plaster made from the French stone will resist the action of our atmosphere for a considerable number of years?

With all due respect and courtesy to Mr. De Lassaux, as a foreigner and a man of science, I must dictinctly say to the contrary, for experience has taught us, that it is in vain to try the experiment in our climate, for the very best plaster that can be made in Europe will not resist the humid, variable, and uncongenial atmosphere of Great Britain, particularly in the more northern portions of the country. We have tried various experiments, both with the English and French plaster stones, and the results have invariably been in favour of the English article, both as regards strength and colour; of course, relative to the latter quality, neither the French nor English alabaster will bear any comparison with that found in such abundance in Tuscany and other parts of Italy,—but this is inferior to the English in strength.

The statement made by one member that the cost of plaster is 3*l.* 10*s.* and 4*l.* 5*s.* in England, seems erroneous, for I observe it is advertized in The Builder by Chas. Goodwin, in London, at 2*l.* 10*s.* and 3*l.* 10*s.*, and it is sold at Carlisle, where it abounds, *under* 1*l.* 10*s.* *per ton*, and at Newcastle-upon-Tyne at 2*l.* 15*s.*

The very nature of plaster stone (it being a sulphate of lime, and consequently an absorbent of damp and wet) at once renders it perfectly and totally unfit for external adaptation, except in a dry and mild climate of southern latitude, and perhaps it may not be deemed out of place to observe, that the external plaster work of England suffers more by the sudden changes of the weather than the continuance of wet or damp; take for instance two or three days of continued rain, succeeded by a severe frost, and immediately after it a rapid thaw, which would assuredly have the effect of forcing *plaster* entirely away from the ground-work, on which it had been formed, in consequence of its having in the first instance absorbed the wet. These remarks lead me to advocate the very great superiority of pure *genuine* Roman cement, as an external stucco; for, in the first place, it is a perfect repellant of wet and damp, consequently very

superior for all hydraulic purposes; 2ndly, it works much more freely than plaster, when mixed with *clean washed river sand;* and, 3rdly, it is ten times more durable; but it must be clearly understood that I allude to the *genuine material only*, not the numerous spurious articles, bearing the name, which now inundate the London, Hull, and Glasgow markets, many of which are infinitely worse than crushed lime.

The best Roman cement ever used in England was made from stone discovered on the estate of the late Lord Mulgrave, near Whitby, by Mr. Wm. Atkinson, architect, and applied very extensively to external works in England and Scotland by the late Mr. Francis Bernasconi, plasterer, of London, and the late Mr. Geo. Robson, of Durham. Amongst these works may be named the upper story of the great central tower of Durham Cathedral, by Bernasconi,—this example has been executed nearly fifty years, and the plain surfaces remain comparatively good, and partially covered with lichen; but the crockets, finials, heads, and other ornaments are hastening to decay, arising, principally, from an excess of cement having been employed in its admixture with sand.

This work forms a melancholy lesson, destructive of the application of cements altogether for all kinds of external facings, at least in our own country, for they are one and all nothing more nor less than paltry and contemptible subterfuges, completely beneath the true dignity of architectural design, and should never be used when good bricks and stone are to be found; and even the latter material, unfortunately, in numerous instances is of the most perishable nature, great care being required as to its selection, in proof of which we can now point to handsome sandstone structures, that have not been erected ten years, which are already in a state of decomposition. If, therefore, the architect has any ambition to build for eternity, he must either employ *granite* or *good well burnt bricks*, and above all things, not mix up stone and brick, as in St. George's Cathedral, and other churches in and about London. Who ever heard tell of a *brick and stone cathedral* by the men of the middle ages, or by the great Wren?

All public buildings on a large scale, such as cathedrals, colleges, halls of justice, theatres, palaces, mansions, &c., should surely be constructed externally of *one material*, and in cases where our English architects adopt brick, why not follow the system of Schinkel, the eminent German architect, viz., to model and mould all the embellishments and mouldings in clay, which produces a uniformity of colour and effect?

Our late lamented friend and companion in architectural labour, Mr. Peter Nicholson, held the theory, that a building should appear as if it were cut out of a solid, in stone or marble; this we consider stretching the matter too far; but Mr. Nicholson was essentially Greek and Roman in his ideas, and the fact of this theory being impracticable, renders it somewhat absurd, and we see no great objection to joints appearing in their proper places, provided they do not cut up the general masses and outlines of the structure.

The great evil of the present age appears to be an attempt to make a *grand display*. Some architects adopt the decorated period of Gothic architecture, developing in some instances a great variety of tracery, *no parapets or clerestories*, with a total absence of towers or steeples; and in others a mixture of yellow coloured brick, with stone dressings, as instanced above. Now, we beg humbly to suggest, in preference to this mode of procedure, that the judicious architect, instead of aiming at elaborate and ornate display, should contemplate and adapt from the glorious early English examples to be found in the cathedrals of Lincoln and Salisbury, the north transept at York, and the magnificent specimen of the nine altars at Durham, and produce from them structures of more simple forms, complete in all their parts, with nave and aisles, choir, clerestory, parapets, and the tower and spire, instead of the garbled and unsatisfactory productions, which are constantly being inflicted on the present age of architectural mediocrity.

In opposition to such, I cannot help alluding to the new church at Camberwell, the designer of which appears to have grappled with his subject in the truly vigorous early English feeling, which we are endeavouring to advocate. We entreat the brick and stone London professors, instead of the pie-bald brick and stone Gothic, to give us structures composed externally of *one material, effective, and complete in all their parts*, that will reflect honour on the age in which we live, and hand down the names of their designers to an admiring posterity.

So ends my present theme, and should you deem these remarks worthy of insertion, I shall in a future paper, make further observations on the latter portion of your review of the meeting of the Institute of Architects above alluded to, in which mention is made of *Portland and John's cement, mastic*, &c., by the chairman, Mr. Poynter, and Mr. Godwin.—I am, meanwhile, yours, &c.

FRANK TYRRELL.

Newcastle-upon-Tyne, June, 1846.

PROFESSOR WILLIS ON ECCLESIASTICAL ARCHITECTURE.

CONCLUDING LECTURE.

On Tuesday, the 9th instant, Professor Willis gave the eighth and concluding lecture of his course. He ascribed some importance to the theory of the eastern origin of the pointed arch, and did not consider the dissimilarity of other parts a sufficient objection. He also dwelt upon the known influence of the Moorish universities, to which students flocked from all parts of the world. These men, returning to their native countries, would describe the architecture of the cities in which they had been educated, and, probably not being architects, would be able to give little more than the form of the arch to the workmen, whom they wished to execute it. These would construct the pointed arch with the mouldings previously in use. Thus we had many buildings, in which the round arch and the pointed arch were employed together, and the pointed arch had the zig-zag, and other enrichments of the Norman. At length, the architects seem to have got tired of the shallow Norman mouldings, and having, as we learnt from Gervase, better tools, they worked them with deeper hollows, as previously mentioned.

The first change, therefore, which took place from the Norman style was in the form of the arch, and the second, in the mouldings. But the piers also were worked on a different system; and ornament, instead of being only scratched upon the surface, had all the relief and elegance, which the improved facilities admitted of. Still the tracery principle was wanting; for the windows of the early English period were merely groups of openings. When this principle came in, which it did probably about twenty years earlier in France than in England, like the pointed arch, it did not immediately alter any thing else. Rickman's views, like those of many other able writers, had been based upon the assumption, that no Gothic building of any importance existed out of England; the continent then being closed by the long war. There was, however, great credit to be attributed to him, and the professor thought it better to retain his nomenclature, at least, until some other terms should be introduced, which could be generally agreed to. The important epoch of the introduction of tracery had wholly escaped the notice of Rickman.

Respecting the current use of the term "transition," as applied to the periods, when one style was supposed to be progressing towards another, the professor said he considered it loose and unscientific, leading to an erroneous impression of the changes of style. He thought, that a more accurate impression was realised by viewing each part separately;—thus, when tracery was introduced, it did not at once gain its proper mouldings, but was worked with those previously in use. The great difficulty attending this, at length led to the use of fewer mouldings. As in this case, so in the transition to perpendicular, and throughout all the parts of a building.—The transition to perpendicular was more gradual than any other. Indeed, the geometrical and flowing patterns continued till the close of the style; and there were also the "imbricated," and other patterns, in which perpendicular lines were hardly discoverable. He might, perhaps, have met with an example of the perpendicular style on the continent, but it might be held as a rule, that that style was confined to England. The mouldings of the late perpendicular style were wholly different from those of the early English period. Taking a door, or window arch, these mouldings were not composed of rounds and hollows, in groups as in the early style, but were the classical outlines, with very slight relief. The *groups* were indeed separated by bold hollows, but their different members were extremely shallow. A form, like the brace in music, which we might call "brace moulding," was very common.

The professor then referred to models upon the table; one representing a compartment in the length of Norwich Cathedral, and the other a similar portion of York. In the Norman cathedrals, there were three horizontal divisions. The triforium, in the centre, was large and lofty, in all respects resembling the aisle below, and was lighted by windows of its own, as in St. Sophia, at Constantinople. He was not aware that this gallery had been used for the separation of the sexes; it appeared to have been erected, merely from traditional usage. Besides this gallery, there was one in the clerestory wall, serving as a passage. The windows of the triforium had certainly not been intended for the use of the nave, for they could not be seen from any point below. Therefore, during the later period, the wall was raised, the windows blocked up, and perpendicular windows inserted at a higher level, the whole being covered with a flat roof; and this was the actual state at Norwich, Peterborough, and some other places.

The importance of the triforium, as a distinctive feature, became gradually less and less. York Cathedral was an example of a curious substitute, made by prolonging the mullions of the clerestory window, in the space of wall, against which abutted the roof of the side aisle. In late examples, even the semblance of a triforium was omitted. As to the object of this gallery, it could not have existed without some use, and he thought, that that purpose was the hanging of tapestry, which we knew was used at great festivals of the church. The term "triforium," as applied to the centre compartment, showed in a curious manner, how a term might be fixed in a signification, to which it had not been confined, The only old author who used it was Gervase, and it originally applied to *any* passage. It was in fact a Latinized form, after the manner of the middle ages, of the English word "thoroughfare."—In the early English windows, the glass was placed nearer to the outside than the inside of the wall; but in later examples, it was actually nearer to the inside, whilst in many cases, there was space for an external gallery.—He then gave some further explanation of the forms of mouldings, and said that he could not better conclude his lectures than by endeavouring to impress upon them this fact, that, though it was quite true there were different styles, the various details of a building had become changed at separate and distinct periods.

The professor concluded his course amidst great applause. We regret that our reports have necessarily been limited to such important heads, as would be most valuable to our readers, but we cannot omit to remark, that the professor's happy manner and his admirable models, rendered the subject interesting and clear to a general audience, to an extent that few lecturers have reached.*

Novel Mode of Interment.—Mr. T. Brookhouse, Roman cement manufacturer, of Derby, having died, was interred in All Saints' churchyard on Tuesday week. A thick layer of cement was spread at the bottom of the grave just before the coffin was lowered; the sides and ends were then filled, and another layer of the same material at the top completely hid the coffin from view, and rendered it air-tight. Ere it hardened, which the cement did in a few minutes to the consistency of the hardest stone, the deceased's name was traced in the yielding mass, so that, if at some future age the deposit should be disturbed, the name of the occupier of the interior may be read.—*Globe.*

British Institution.—This gallery is now open for the exhibition of works of the old masters, and consists chiefly of portraits of eminent persons.

* In report of last lecture, line 13 from commencement, for "abbey arches" read "abbey churches."

FREEMASONS OF THE CHURCH.

ANCIENT ORNAMENTAL GLASS.

JUNE 9; Mr. French, architect, in the chair. The Earl of Zetland exhibited an enriched foliated frame, designed to hold the orders of General Dundas. The Hon. Stewart Mackenzie contributed twelve pictures in boxwood, being specimens of early German carving. Mr. A. Black exhibited some drawings of Details in Heriot's Hospital and Glasgow College, Scotland.

Mr. A. J. Stothard offered a few remarks in connection with his paper, read at a former meeting, relative to the supposed mode which the ancients adopted for the production of the Portland Vase; observing, that he was more especially led to present them by way of supplement, in consequence of his hypothesis being apparently confirmed by a very interesting paper, which appeared in the *Literary Gazette* of the 16th ult., from the pen of Campanari the elder, "On the Glass of the Ancients," who states, "That the ancients, among other interesting things, discovered glass to a perfection which their posterity are very far from having attained; vases, cups, and utensils of all sorts, as deposited in the museums of Europe, and that of Herculaneum, as dug out of Hetruscan and Roman tombs;" that they "wrought basso-relievi: the most useful and important, as observed by Winkelmann, was certainly the glass paste with which cameo and intaglio were exactly imitated." Without passing over Campanari's paper seriatim, such parts only as more especially bore on the subject were referred to.

The next paragraph stated, "That *it was certain* that the impressions of these glass cameos were made *with casts* taken from the original," which, the lecturer remarked, would of course pre-suppose that the basso-relievi were from models, previously prepared on the body of whatever it might be of which it was to form a part; that they were cast, Campanari says, was evident, because on the surface might be discovered by the naked eye a roughness termed *slavatura*, as clearly indicated by remnants of several parts not polished; in others can be seen marks of a fissure in the stamp—as in the glass paste belonging to Mr. Emerson—in others an unevenness, caused by a fault in the intaglio applied to it, as in the cameo in possession of Mr. Hertz. The lecturer remarked, that he attributed such a fissure to arise from such parts of the melted glass or metal not being at a proper degree of heat when they came in contact, and which would in all probability form a line of that character. Some small specimens of works of the ancients, which were laid on the table of the college at a recent meeting, belonging to Earl Cadogan, had every appearance of having been cast. But he passed on to works of a much larger character referred to by Campanari, one of which was a large cameo in the Bibliotheca Vaticana, as described by Winkelmann. On the Portland Vase, or the fragments of it when in a shattered state through its late mishap, it might be observed, that the parts from which the white figures had been separated by the blow, shewed clearly that the *whole* surface of the vase was equally polished. That the wheel was used by the ancients cannot be disputed, and is fully admitted by M. Campanari, who supports Mr. Stothard's idea, that it was only done to remove the slavatura or roughness left on the surface of the basso-relievo in the casting, while the field of the vase, from the mode described in the previous paper of the latter, would be preserved as originally blown; this appeared to be confirmed by Campanari, when stating, "that from the examples referred to, it was evident that the ancients first took models in clay of the basso-relievo they wanted to represent, and then they affixed to the vases *casts from the models*, as with casts from intaglio they reproduced the original engraving in glass.

On this part of the process Mr. Stothard and this authority did not agree, the former supposing them to be affixed by casting the basso-relievo on the body of the vase, while the latter believed them to be cast in a detached form, and affixed subsequently; in closing his remarks, the former expressed deep regret that the polished surface beneath the figures of the Portland Vase, was not compared with those parts of the body of the vase termed the field; for by doing so, it might in all probability have been ascertained, if the wheel had passed over the blue ground not so covered by the basso-relievo, as certain angles would of necessity appear thereon if it had, while those parts covered from the wheel by the basso-relievo would be without such marks, as he believed that no art or polishing would produce that *evenness* and *brilliancy* of character which will be found on the metal as blown. Such an examination, he did think, would set at rest the question whether the whole had been cut with the wheel, as in cameo engraving, as supposed by Mr. Doubleday, to whose hands it was committed for restoration, or if the figures had been cast as suggested by the lecturer, while the blue ground of the vase was preserved in its original state, by being covered with *loam* while casting the basso-relievo thereon; if the latter, we may yet hope to see some works of this character produced in our own day; especial ground for such an expectation may be derived from the valuable researches of Campanari.

A communication was then read from Mr. James Finn, her Majesty's consul at Jerusalem, on the buildings in Avignon, &c., to which we shall refer on another occasion. A converzatione is to be given on the 29th inst., on the occasion of opening new rooms.

MEDALS OF THE SOCIETY OF ARTS.

WE had the pleasure of witnessing the distribution of prizes at the house of the Society of Arts, in John-street, Adelphi, on the 12th instant. A numerous, but select, assemblage, amongst whom were many ladies, had met in expectation of seeing his Royal Highness Prince Albert in the chair, as president of the society, to distribute the numerous medals and other prizes; but much disappointment was felt when it was intimated that the result of a slight accident prevented his Royal Highness from attending. Mr. Scott Russell appeared to have much gratification in stating, that a deputation of the office-bearers appointed to wait upon Prince Albert at the Palace, in order to give him information as to the affairs of the society, had found that they had gone there to receive information, not to contribute it; and that his Royal Highness not only appeared to be thoroughly versant with the doings of the society, but to have well considered various subjects demanding improvement, and regarding which he pointed out to them, in the most business-like manner, how they should proceed. Amongst other suggestions, his Royal Highness proposed, with reference to the fine green marble of Ireland, the value of which did not appear to be known even to its proprietors, much less to the district in which it abounds, that a premium ought to be offered next session for the most perfect slab of it, as a specimen, to be contributed to the society. It appears, also, that the prize patterns of ordinary stoneware for tea and dinner services for the poorer classes, in which the society has taken great interest, are the result of a suggestion made by his Royal Highness, with the view of improving and gratifying the taste of those who could not afford to purchase elegant forms wrought in expensive material. In short, said Mr. Scott Russell, we have a most intelligent, most willing, and most valuable president, of whom we are very proud.

It is but justice to Mr. Scott Russell himself, however, to say, that the society appears to be deeply indebted to him also, as one of the very main-springs of its present successful state of operation; and he appears to be well sustained and seconded in his vigorous and untiring efforts by his more immediate colleagues in office.

The spectators were somewhat compensated for the want of the Royal president, by the appearance of his Highness Ibrahim Pacha, followed by several of his suite in their Egyptian costume, and all of whom appeared to be much interested with the proceedings. The chair was occupied, singularly enough, by the Pacha's old antagonist Admiral Codrington, with whom the Pacha good-humouredly shook hands on being unanimously elected a member of the society.

In our further remarks, we must, of course, confine ourselves to what more particularly concerns us. And first in order amongst the prizes for improvements in mechanics and mechanical arts, is,

No. 1. To Mr. M. Ricardo, of Brighton, for his machine for registering the speed of railway trains, the gold Isis medal.

"Mr. Ricardo's machine," the committee remarked, "is simple, ingenious, and accurate. The correct determination of the travelling velocity of trains at all points of the journey, with the duration of stoppages, by self-acting mechanism, is an important object, and the preservation of such a record for the use of the directors and managers of a railway is likely to promote the public security, and the efficiency of superintendents."

No. 3. To Mr. T. R. Crampton, C.E. of 18, Sussex-place, Kensington, for his improvement in the construction of the locomotive steam-engine, the gold Isis medal.

The committee announced Mr. Crampton's invention as "a mode of constructing locomotive engines, by which the centre of gravity may be placed lower than in the ordinary construction, and at the same time allow as large a driving wheel to be used as any practical man may desire. He is enabled by this means to construct a more powerful engine than heretofore on the narrow gauge, without diminishing its stability."

No. 4. To Mrs. Varley, of Charles-street, Clarendon-square, for her method of ventilating rooms without cold currents, or complex apparatus, the silver medal and *5l. 5s.*—The committee appeared to think that Mrs. Varley has accomplished her object, so as to afford thorough ventilation without draughts, an object not yet, it appears, otherwise accomplished on behalf of either our legislature or our judicial administrators of the law.

No. 5. To Mr. Joshua Jeays, of 9, Green-street, Marlborough-road, Chelsea, for his orthogonal system of hand-railing, the silver medal.—"Mr. Jeays' system of getting out with the hand-rails," the committee remarked, "is new, ingenious, and economical; and there is little doubt it would be useful to mechanics, if generally adopted."

No. 9. To Mr. T. Falconer, of 10, Park-street, Limehouse, for his improved plough for carpenters, joiners, &c., the silver medal and *5l.*

No. 10. To Mr. W. G. Gover, of 8, Chester-square, Pimlico, for his patent removable window sash, the silver medal:—"Mr. Gover's window sash," the committee observed, "affords great facility for removals. It is light when in its place. The fixed head is important, and the expense is moderate. The benevolent object of the inventor, namely, prevention against accident, is well carried out by novel means."

No. 14. To Mr. H. B. Cowell, of 4, Compton-street, Ball's-pond, for his improved ball-tap for cisterns, the silver medal.

No. 15. To Mr. J. E. McDonall, 22, Tavistock-street, Covent-garden, for his improved Archimedean screw-drill, the silver Isis medal.

No. 17. To Mr. G. Scott, of 13, Fletcher's-row, Clerkenwell, for his apparatus for drilling and tapping gas and water-pipes, the honorary testimonial and *5l.*

No. 21. To Mr. D. Middleton, of 9, Bailgate, Lincoln, for his self-sweeping chimney pot, the honorary testimonial.

In the fine arts a number of medals were distributed, many of them to young persons, both male and female, and some to mere children, for meritorious endeavours; but of these we cannot here take any special note.

No. 48. To Dr. Ritterbandt, of 9, King William-street, Strand, for his method of preventing incrustation in steam-boilers, the gold Isis medal.—Chlorine or muriatic acid, in the form of muriate of ammonia, is the agent recommended by Dr. Ritterbandt. The incrustation being of a calcareous nature, and lime, when combined with muriatic acid, being of a soluble and indeed highly deliquescent nature, muriate of ammonia dissolves the incrustation by simply contributing its muriatic acid to the lime, and converting it into the soluble muriate of lime.

No. 49. To Mr. B. Albano, civil engineer, of 24, Essex-street, Strand, for his patent cannabic composition, the gold Isis medal. On this subject the resolution of the committee was stated to have been "that in their opinion Mr. Albano's patent cannabic composition is new, and an article which is cheaper and in many respects superior to any material

hitherto known or used for the manufacture of raised figures." It appeared to consist in the application of a thin woven texture, such as linen or cotton, to the surface of the mould, the inequalities being afterwards filled up with a resinous composition.

No. 51. To Mr. G. Franchi, of 69, Myddleton-street, for the best imitation of ivory in plaster composition, the silver medal and 5*l.* 5*s.*

No. 54. To Mr. H. Page, of 8, Bishopsgate-street Without, for his patent oil-integument or skin of paint, the silver medal. "This was an invention whereby," as facetiously remarked, "Mr. Page can oil-paint your house in the interior of his own," so as to prevent the annoyance of smell, &c., from newly-painted walls. It consists simply of painting on large square surfaces, previously coated with wax or other substance, allowing the coat of paint to be easily peeled off. The sheet of paint is quite flexible, having much the appearance indeed of a piece of soft silken texture. A peculiar advantage of this mode of painting in oil was stated to be the possibility of thus covering walls with marbled patterns in oil.

A vote of thanks was passed to the chairman, and the meeting separated.

RAILWAY JOTTINGS.

As anticipated in our last impression, the Eastern Union extension of the Eastern Counties line, from Colchester to Ipswich, has been opened for passengers, but on Thursday week, and not on the 15th, as was proposed. The cost of this line of rail per mile, stations included, was 20,000*l.*; it was constructed under the superintendence of Mr. Bruff. The journey at the opening was performed in 40 minutes. ——Another line, the Middlesborough and Redcar, was also opened on Thursday week. ——The Salisbury line to Bishopstoke, it is said, will be ready for inspection, previous to its public opening, on the 10th of August. The works have already advanced close to the city, and they are in progress by night relays as well as by day.——Mr. Hopkins's improvement in the construction of rails is at present exciting attention. Safety and economy are the advantages claimed by the inventor. This new rail is a combination of iron and paynised or semi-metallized wood. A continuous line of timber is capped with iron, slightly projecting over the wood on the side next the wheel, in such a manner that, while the wheels are in their proper place, it does not touch; but should a jolting or jumping motion occur, with a tendency to run off the line, it is sufficiently close instantly to receive the concussion, and thus to slide the wheels off again into their proper place. Besides safety and economy (the cost per mile for a double line not much exceeding 2,000*l.* instead of 4,400*l.* to 6,000*l.*), Mr. Hopkins maintains, that a firmer hold or grip will be thus taken by the locomotive wheels in ascending inclines, and that increased comfort to the passengers will accrue from the absence of all noise as well as oscillation or jolting of movement.—— The Swindon station seems to be, in more respects than one, a thriving offspring of our growing railway system. It is said, that although 700 artisans are already employed in and about the factory, 500 more will be put on so soon as dwelling-houses can be built for them. We lately observed, too, that they are uniting the *dulce* with the *utile*, extensive musical arrangements being in course of establishment amongst the operatives and others connected with the railway company, who are affording them substantial countenance in the promotion of their laudable and harmonic union——Mr. Pemberton Milnes, in lately giving his evidence before the London and York committee, stated, that in consequence of the abstraction of traffic from the North road, the number of post-boys in one well-known town, where there were formerly twenty, had dwindled down to two, and that one of these had lately hanged himself.——When the Grand Junction line was opened, only one goods train passed nightly up the line; but now there are fifteen, each containing half as much more as the one did.——General Pasley is said to be the author of the Board of Trade's Report on the Gauges. It is thought to bear "internal evidence of his mark."——The picture on the break of gauge, published in the *Illustrated News*, was offered and admitted in evidence before the committee on the Southampton and Manchester line in the midst of "great laughter."——Several of the provisional committees on defunct schemes are resorting to a new mode of proceeding against defaulting allottees. They are endeavouring to induce those who have paid up their deposits, to sign an assent in favour of the procedure of the committees against those who have not paid up, under pretext of obtaining the funds necessary to clear off the liabilities of the companies. But in many cases the plan has failed, being suspected to be merely a manœuvre to guarantee the projectors in any law expenses which they may think proper to incur in this last struggle for victory.——By the way, an important decision as to the non-liability of allottees, was announced on the 12th instant, in the Exchequer case of Walstab *v.* Spottiswoode, which has formed the subject of so much discussion in the railway world of late. The Lord Chief Baron's judgment in this case is to the effect, that in every case where the ostensible or professed object of the proposed company fails in being carried out, the provisional committee alone are liable for the expenses which may have been incurred; not only so, but that any party to whom shares have been allotted is entitled to recover from the provisional committee men the entire amount of deposit paid by such party, not even deducting the trifling per centage for provisional registration. In the present case, only 4,000 shares out of 80,000 were paid upon, but the provisional committee nevertheless thought proper to charge the applicants for shares, who had paid their deposits, with the expenses incurred. The court was crowded to excess, and the decision evidently surprised and disappointed most of those present. We do not agree with the chief baron.——In the French Chamber of Peers, on Thursday week, the Dijon and Mulhausen railway bill was passed.——The French preparations for the opening of the Great Northern line, *on Sunday*, the 14th inst., were on the most magnificent scale. "A detachment of waiters, amounting to 600 in number," says a private letter, quoted in the *Times* of the 15th inst., "left, or was to leave, by the trains this day for Lille, and many other trains are occupied in conveying the viands, wines, fruits, confectionary, and ices, for the monster entertainment, which is to celebrate, to-morrow, at Lille, this important event." The *Univers* very properly reprobates the conduct of certain high functionaries, in appointing the Sabbath day for such a purpose.

NO TUNNEL THROUGH GREENWICH PARK.

From correspondence, reports, &c., issued within the last few days by order of the House of Commons, it appears that although the Board of Admiralty had given their sanction to the Gravesend Railway passing through Greenwich Park, and although it was resolved by the Board of Visitors of the Royal Observatory on the 6th instant, in accordance, as it would also appear, with the astronomer royal's opinion, that no very serious inconvenience would probably result to the observations from the passage of a railway in a tunnel, at the distance of 850 feet from the observing rooms; nevertheless the Admiralty "deem it on the whole, most prudent to withdraw their sanction to the tunnel through Greenwich Park for the proposed railway being proceeded with, at least until another session of Parliament, when further experiments may induce a more concurring opinion as to the real effects such a measure will have on an observatory situated at the distance stated from such railroad tunnel."

Their lordships appear to have been moved to this decision by the consideration that "although they have the greatest confidence in the opinion of the astronomer royal more particularly charged with the observations at the observatory, and of course perfect reliance on the correctness of the decision of the majority of the learned visitors of that institution," yet "persons of distinguished ability whose opinions are entitled to be received with deference (namely, as it would appear, Sir John Herschel and Mr. Babbage, whose proposed amendments of the minute of the Board of Visitors were negatived), have given strong and decided contrary reports."

THE PROGRESS OF IMPROVEMENT IN DONCASTER.

It affords us pleasure to perceive from a local paper, that a course of spirited and rather extensive improvement is about to be commenced in Doncaster. Plans for the clearing away of old houses, and the erection of a new town-hall and new market buildings have been recently approved of by the town council, and finally adopted. The present town-hall is to be razed to the ground, but the new one is to be erected on the site of the old Angel Inn, in French gate. It will be built of stone, with four Corinthian columns, supporting a pediment, next the street. It is proposed to surmount this pediment with the figure of Justice, on the present town hall,—a production of Guise, once the right-hand man of Nollekins. The elevation of the hall will comprise two wings: length of the whole edifice from front to back 152 feet; width of front, 63 feet; extreme height of pediment, 46 feet; so that the present hall is of insignificant dimensions when compared with the new. The angle of the proposed market-buildings commences at the corner of the Union Inn, and the line extends in the direction of the Plough Inn, at the end of the present town hall. The length of this portion is 226 feet. The other, which extends from the angle already mentioned, in the direction of the corn market, is 137 feet. Width of whole, 72 feet. There will be four principal entrances. Each door-way will be decorated with four pilasters, and the windows ornamented with circular heads. The base will be formed of rusticated ashler stone, and the whole exterior built of Darfield stone. The roof will be formed of iron, covered with blue slate, and supported by 18 cast-iron columns, 31 feet high, and so disposed as to distribute gas-light to the whole interior. Our limits prevent us from noticing at present the interior arrangements into shops, &c., but we may add that these improvements are more extensive than any ever witnessed at one and the same time in Doncaster; and considering their utility and convenience for business, together with the simultaneous railway accommodation in which the town will henceforth participate, a new era of advancement appears to be opening on this district, both in town and country.

"THE WOODS AND FORESTS."

MATERIAL FOR A NEW CONFLAGRATION AT WESTMINSTER HALL.

"We all recollect," says a correspondent of the *Times*, "that when the Houses of Parliament were consumed by fire, some ten years since, antiquarians and others immensely congratulated each other that that venerable Gothic pile, Westminster Hall, was saved from the general ruin;" yet "at this moment we find that beautiful edifice surrounded by timber and other inflammable materials, as ingeniously disposed and laid out for the destruction of the Hall by fire as the greatest enthusiast of incendiarism could desire." It is too true. "The Commissioners of this Forest of Wood, or Woods and Forests, have not only erected, outside the hall, architectural meat-safe looking erections—the early English domestic style, I presume—for the Vice-Chancery authorities, the long-armed flues of which actually touch the wall of the ancient edifice—but the interior is absolutely filled with tall climbing wood partitions and boardings, as if by sympathy of mischief it was intended that no possible chance should be given away for the entire destruction of the building in the event of a spark lighting on any portion of it." Surely, since so great a share of these time-venerated edifices has been already *stolen* from us by the devouring element, the *door* should now, at least, be shut against the ravager, lest he return upon us, and consume even the little that remains. Has the *a posteriori* prudence of the old proverbial maxim not even yet occurred to the honourable commissioners?

Prison Reform.—We are glad to find that a proposed testimonial to the memory of the late Mrs. Fry, is to take the shape of an institution for the refuge of discharged female criminals. Our remarks of last week on the subject of prisons have elicited responses most gratifying to ourselves.

ELIZABETHAN FRIEZES.

Fig. 1

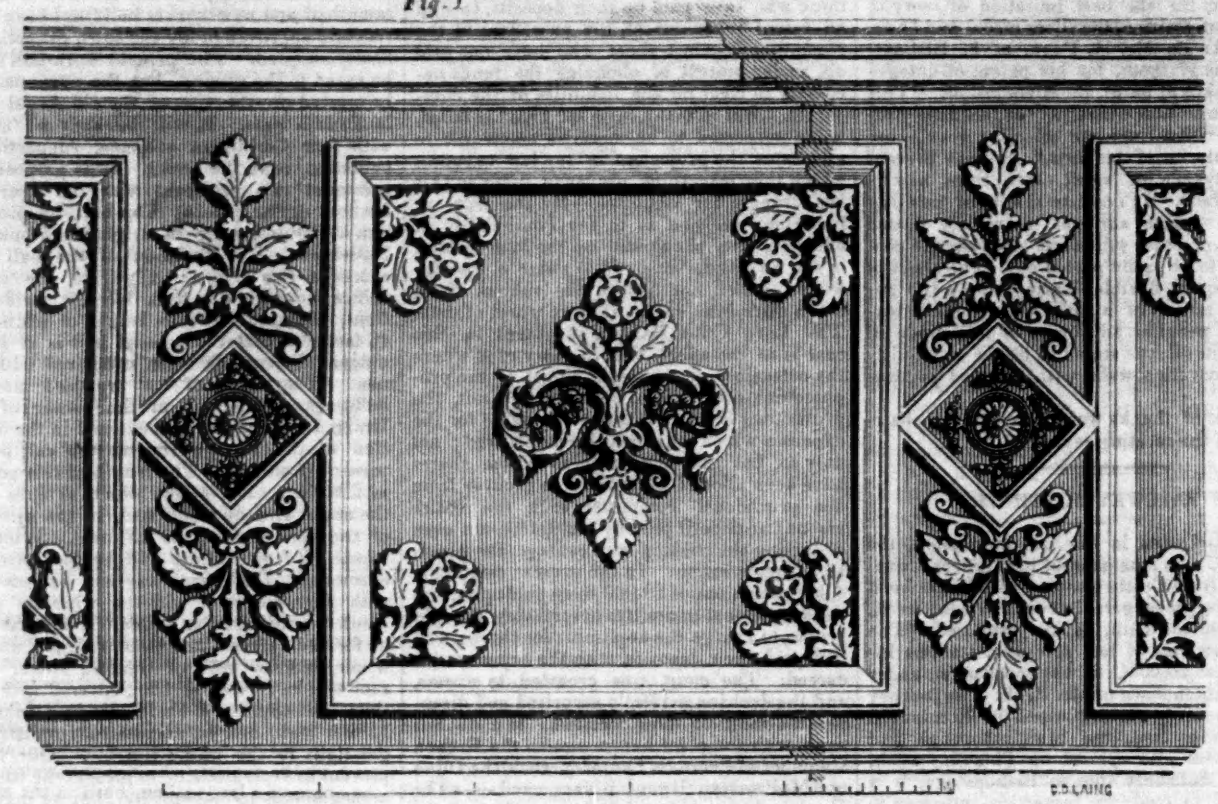


Fig. 2

EXAMPLES OF ELIZABETHAN FRIEZES.

In the early Italian architecture, we find the sides of large rooms had a regular entablature, the frieze of which was of great dimensions, and adorned with boldly sculptured compartments, filled with paintings; between, were groups of children, festoons of flowers, scroll work, sometimes gilt, and an endless variety of decoration; beneath the small architrave the walls were hung with tapestry, and a richly painted ceiling above completed the whole. The early Italian architects were painters, and even sculptors; and the junction of the three sister arts was thus made subservient to the decoration of their buildings. Scarcely any style of interior enrichment can be imagined more beautiful or in better taste, admitting greater variety in form or colour, than the one the old Italian masters introduced.

Our old Elizabethan buildings, which were imitated from these Italian palaces, present us with an innumerable quantity of these ornamented friezes; the whole, however, at a very humble distance, both in style and execution, from the Italian. In the common examples, these friezes contain shields, and where the compartments are numerous, for want of a better filling up, or a more skilful artist, the figures of a horse, a bull, a camel, a lion, &c. &c., are introduced; these figures are apparently copied from the book prints of the time. The great hall at Aston has a frieze, adorned with

the numerous crests appertaining to the family. The best of these ornamented friezes are at Crewe Hall, in Cheshire, where they are in great variety, and at Aston Hall, in Warwickshire.

Fig. 1, is a frieze from one of the rooms at Montacute, in Somersetshire; here the ceiling is plain, but the walls, up to the lower moulding of frieze, have the usual rich oak framing. An Italian example, somewhat similar to this, though greatly superior in taste and execution, is in the great saloon of the Massimi Palace at Rome, the work of Baldassarre Peruzzi, architect and painter.

A few examples are given in illustration: Fig 2, is from the carved parlour at Crewe. There are fourteen of the oval compartments, each containing a different figure,—such as Faith, Hope, Charity, Religion, Temperance, &c. &c. These figures are not the work of a very skilful artist. Above the cornice is the very curious strap ceiling of the room, and the walls are lined with richly carved oak panelling.

Fig. 3, is the cornice of a low room at Campden House, Kensington; it is of oak, the framing being continued to the ceiling.

Fig. 4, is a frieze from a room at Stockton House, Wilts; this apartment is not above twelve feet in height, the cornice is therefore small.

Fig. 5, is a section of the cornice of the hall at Boston House, Brentford, introduced here to show the method of keeping the rib of ornamented ceiling separate from the cornice of the room.

In conclusion, the numerous pictorial publications on ancient Italian architecture exhibit to us interiors, which in the olden time, formed the type of many of our own, copied, it is true, in a more humble degree, but still displaying much of the spirit and taste of the original.

C. J. R.

SIR JOHN RENNIE'S CONVERZATIONE.

On Saturday evening last, Sir John Rennie, as president of the Institution of Civil Engineers, received the members of that society, and a crowd of men eminent by rank or attainments, at his residence in Whitehall-place, where he entertained them with profuse liberality, and set before them a number of most interesting models and works of art.

Amongst the former may be mentioned one of the biscuit-baking machinery, invented by Grant, and erected at Portsmouth Dockyard. Struvé's machine for ventilating mines by exhausting the upward current in the air shaft, elsewhere alluded to in our present number. Mr. Mellian's proposed method for conveying railway trains across the river Dee, by means of a platform travelling upon rails fixed on piles across the bed of the river. The St. Katherine's Point and Menai Lighthouses, sent by the Trinity Board. Mr. Robert Stephenson's long boiler narrow gauge locomotive, and the Great Western broad gauge locomotive. Plans of the proposed harbour of refuge at Dover, by Mr. George Rennie. A model illustrating Mons. Hallette's atmospheric system. A model of Mr. Ricardo's instrument for registering the velocity of railway trains.

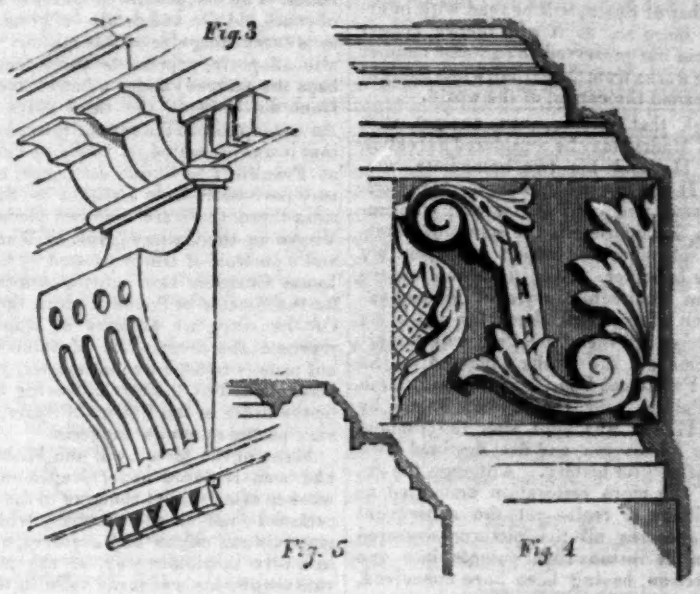
Mr. Oldham's machine for numbering and paging registers at the Bank of England, and also applicable for all tickets where a series of numbers is desirable, excited some attention; as did that of Mr. Rand, for making collapsible tubes to hold artists's colours and scents, which we described some time ago.

Some good specimens of machine wood-carving, by Taylor, Williams, and Jordan, were also exhibited.

The temporary room constructed last season, has given place to one in accordance with the "Buildings Act," elaborately decorated. Sir John opens his house again to-night (20th) on the 27th, and on the 4th of July, and is entitled to the best thanks of the institution over which he presides, for thus munificently maintaining its dignity and advancing its interests.

Cork Provincial College.—The Board of Works has approved of the plans for this building, drawn by Sir Thomas Deane. The erection will be very extensive, and in the Elizabethan style.

ELIZABETHAN DETAILS.



JOINTING OF ANCIENT MASONRY.

Sir,—As you occasionally, give some very interesting specimens of the architecture of the middle ages in your useful publication, will you allow a stranger to urge that to aid in the development of the principles upon which the pointed architecture is founded, all the jointing of the arches, jambs, pillars, capitals, and bases should be delineated; this will enhance the value of your illustrations, and from the beauty of construction being first depicted in your professedly practical work, you will ensure the approval of all architects and students in the profession.

Notwithstanding this is the age of plaster, and some will say, "*no matter how constructed, as joints need not be shewn*," in pointed architecture, they are indispensable, all must be real, its constructive ingenuity constitutes one of its greatest beauties.

Where the innovator has not despoiled, nor by insertion destroyed the stability of our ancient buildings, how perfect the arch remains! The *masonry*, worked on principles unerring, retains its pristine elegance, for all the forms were the result of study,—nothing was constructed at random.

The arches in the nave of our small churches will always be found separate, three in number, as shewn by A. When they are of considerable span, as in our larger churches (not in stone counties, as there generally the walls are faced with the same inside and out) a rough discharging arch of rubble stone is placed over the cusped arches, and the walls, also rubble or brick, are covered with stucco for *painting* in *water colour*.

Only last year a *country* architect was desired by a certain society, to make key-stones to his pointed arches of nave windows and doors of a church, submitted to them for aid towards its erection, in a poor district, and the specification for their construction was altered by the clerk.

Door-arches spring from a solid foundation formed by the capital, which is invariably cut in the angle of a large stone, built in the wall,—hence the capitals and bases (similarly formed) are so frequently found in Norman and early pointed doors without the pillar shafts; the arch-blocks of the doors will be found invariably as in the sketch, B. These are cut into mouldings and ornamented, as in the plan, C.

Early decorated tracery was worked, sometimes partly in the marginal arch, and frequently independent of it; and as Mr. Billings shews, in his Carlisle Cathedral, so beautifully jointed, that, in case of decay, a single stone may be removed, and a new one inserted, without affecting any other part of the tracery stones.

I have found in modern works the most preposterous construction: mitred, and even oblique joints!—the result of ignorance in each case, but in the latter,* combined with obstinate determination to set advice and example at defiance.

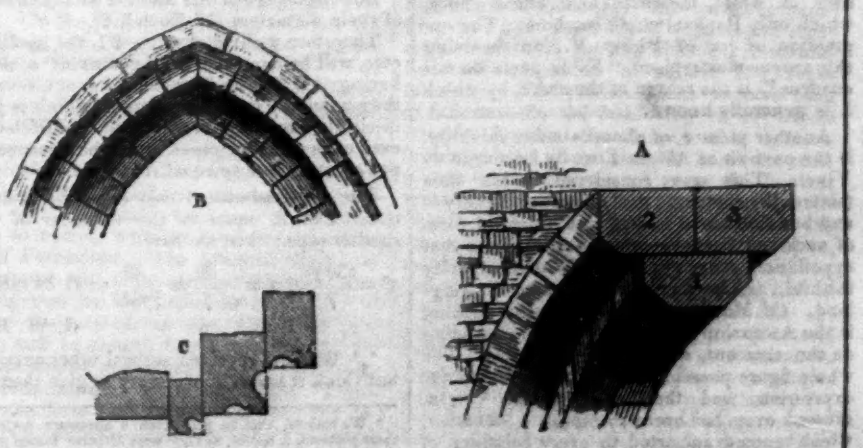
In all old works, we find obtuse angled terminations, or at any rate, none beneath a rectangle, even in the acute-angled combinations founded upon the equilateral triangle.

I am, Sir, &c., X.

London, 6th June, 1846.

* A new church-door in Yorkshire, by a junior.

JOINTING OF ANCIENT MASONRY.



THE NATIONAL GALLERY OF MADRID.
[1845.]

The topic of national galleries of art is now so deservedly popular, that the following notices on that of Spain, will be read with interest — the more so, as it will thence appear that Madrid has preserved an *immense* number of valuable works from the period, when it might really be called the capital of the world.

Although that city is very ancient, still, the actual Madrid may be considered a creation of Philip II. and his two immediate successors. It was the two architects, *Juan Batista de Toledo* and *Juan de Herrera*, who impressed on this metropolis the stamp of greatness and splendour, by which it so forcibly strikes the beholder. Even up to the present period, the architectural style of Madrid exhibits traces of that splendour, for which the pompous reign of the above king was conspicuous.—Amongst the works executed by the late king, Ferdinand VII., was the restoration of the Palace near the Prado, begun by Charles III. It was built after the designs of *Juan de Villanueva*, and first destined for a museum of natural history. Although the expenses of the mere restoration amounted to seven millions of reals—yet the subsequent idea, of collecting all the pictures scattered hitherto in the various royal palaces, into one huge collection, having been once conceived, the huge building near the Prado was soon put into perfect repair. When the Gallery was first opened in 1819, it counted 311 pictures —which have risen since to 1,949; still, there are a great many paintings, which await the complete expansion and finishing of the building, for being added to the above. These are such as are either deposited temporarily in the vaults of the Gallery, or remain yet in the royal palaces; as for instance,—the Escurial, which has yielded 101 of the finest works to the Gallery, possesses yet more than 600, many of first rank. It will astonish most of our readers, if they be informed of the great riches of the Madrid Gallery in paintings by Spanish and Italian masters. Thus, the Gallery contains 46 pictures of Murillo, 53 of Ribera, 14 by Zurbaran, 18 of Juams, and 62 of Velasques —masters, of whom a very few, or no specimens at all, are in our public collections. Equally well provided for are the other schools, as there are 10 paintings of Raphael, 55 Giordanos, 43 Titians, and 27 Tintorettos. Even the French and German schools are adequately represented in the Madrid Gallery—while the Dutch and Flemish are uncommonly rich, owing to the once connection between Spain and the Netherlands. Thus, Rubens appears with 62, and Teniers with 52 numbers in the catalogue. — There is amplest scope here for comparing the merits of the *Spanish* school with that of the others—a comparison by which Murillo cannot but gain in appreciation. In him, we may say, dwells a world of ideas, heaves a sea of passion—and his inward eye has mostly pierced the outward forms and penetrated up to the soul of the characters he represents. This, certainly, cannot be better appreciated than here, where 46 pictures shew him in all the varied forms his rich mind was able to assume. It is in this gallery, also, that one of the finest works of Raphael—"*la Perla*," is to be gazed at, known by several good engravings. The *colorit*, however, no engraving can render—which, in the faces of the holy Virgin and the child presents a mixture of white, incarnate and bluish hues, which only Raphael could combine. The expression of joy of Philip V., on receiving this *unique* masterpiece, "Es la perla de mis cuadros!" is the reason of the *name*, by which it is generally known.

Another picture, of almost similar celebrity, is the portrait of *Monna Lisa*, by Leonardo da Vinci. This was considered in her time (sixteenth century) the queen of beauty—and her rich blond tresses and splendid form of neck and bust, seem to entitle her to that appellation. An engraving by Calamatta, pretty faithful, is, however, little known in England. Of Murillo's pictures the most striking is the Ascension of the Holy Virgin—standing on the crescent, surrounded by angels. The whole figure possesses, to say so, a *paradisiec* expression, and the hands of the Virgin, crossed over her breast, bespeak a devotion, which becomes imparted to every beholder of this splendid art-work.

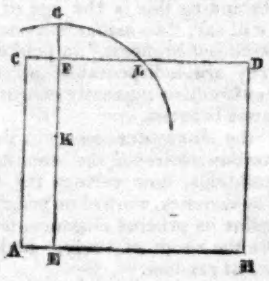
That some good pictures of *Albrecht Dürer* and even *Lucas Cranach* should be found here, is not to be wondered at, if the riches of Spain in the middle ages are taken into account. The first picture of Dürer is an allegory of youth, old age, and death—of great character, as is every thing else of this master. Another, also allegoric, represents three females (perhaps the Graces) under a laurel tree, two sing from out a book, the third plays the lute.* An inscription on the rear of the canvass states, that it was presented, in 1548, by Count Solms at Frankfort to Count de Ligne, and thus it may have come from Brabant to Spain. Besides these, there are also two pictures of the Virgin in the Gallery (Nos. 1019 and 1611)—and a portrait of Dürer painted by himself. Of Lucas Cranach two hunting-scenes, painted for the Elector of Saxony, adorn the Museum. Of the sixty-two pictures of Rubens, many represent the ascetic life of saints—a subject not usually treated by that master, and only to be explained by the fact of having been made by the order of the Philips of Spain, who were very partial to similar subjects.

Many of the pictures of the Madrid Gallery had been removed under Napoleon to Paris, whence every thing belonging to the crown was returned; not so the pictures, which French generals and others had *acquired*, at times, in in a very suspicious way, as the plea of private acquisition was made valid in this case.—The Madrid Gallery is open to the public every *Sunday*, but artists and strangers are admitted every day on presenting orders of admission from the director, or their passports. The great order, cleanliness, and perfect illumination of the pictures deserve every praise. [*From German sources.*] J. L——Y.

* We believe, that to give even a summary notice of these pictures, is useful, as they were hitherto buried in the rooms of the Spanish palaces, and hardly known to exist.

CONVERSION OF AREAS.
ANSWER TO "ZERO'S" QUESTION.†

Let AB be the diameter of the main. Upon AB describe the square ABCD. Make AE equal to one-seventh part of AB; draw EF parallel to AC, and produce it to G, making



FG equal to CF or AE. Bisect GE in K, and with centre K, and radius KG, describe a circle cutting CD in L. Then will FL be the diameter of the smaller pipe sought for.

The truth of this may be demonstrated as follows:—

FL is a mean proportional between FG and FE (6 Euclid, 13), *i.e.* between CF and FE.

∴ the square of FL = the rectangle CF, FE, which is the parallelogram CE.

But parallelogram CE is one-seventh part of square BC (by construction, for AE = ⅐ AB).

∴ square of FL is one-seventh part of the square on AB.

But circles are to one another as the squares of their diameters (12 Euclid, 2).

Therefore a circle, having FL for its diameter, will be one seventh the size of a circle having AB for its diameter; *i.e.* one-seventh the size of the main in question, which is precisely the condition required to be fulfilled by each of the smaller pipes, since the whole seven put together are to equal it in area.

The above admits of easy check by calculation. Put A equal to the diameter of the smaller pipe; then we have

$$a^2 = \frac{(30)^2}{7} \text{ or } a = \frac{30}{\sqrt{7}} = \frac{30}{2{\cdot}645} = 11{\cdot}34 \text{ inches.}$$

G. W. R.

*** We have received several other answers, but think it scarcely necessary to give them.

† See p. 260, *ante*.

ILLUSTRATIONS OF ANCIENT ARCHITECTURE,
IN THE LINE OF THE GREAT WESTERN RAILWAY.*

"The decidedly early English remains are, principally, parts of the churches of Acton, Langley Marish, Stoke-Poges, and Hitcham; some windows at Upton; the very curious polygonal east apsis at Tidmarsh; the south wall of the nave, and east end of the chancel at Compton; the font at Rotherfield-Greys; the very beautiful chancel of Cholsey, erected by the abbots of Reading, and late in the style. The very curious nave of Ardington; the tower of St. Helen's, Abingdon; and the tower of Harwell, are early examples of the style, and the latter very much resembles the decidedly Norman tower of Fingest, near Henley. The nave and font of Wantage are in this style, as is the beautiful north aisle of Dorchester, on the south door of which is a curious example of an early English pointed doorway, with a square head, similar to one seen on the north side of Nantwich church in Cheshire; in both cases the head is part of a regular string course, which rises to be carried over the door; but the general appearance of this arrangement resembles the perpendicular style. The nave and chancel of Childrey are early English, as also are the tower and north porch of West Hannay, the tower and spire of Shillingford, and the fine church of Uffington, each being a complete example of the style. Towards Bristol the early English remains are not numerous. The chancel at Keynsham is good, and the north or Newton chapel at Bitton is a most perfect and beautiful specimen. There is also an excellent early English chapel on the north side of the cathedral of Bristol; part of St. Mary's, Redcliffe, and of the Mayor's chapel, are in the same style.

The transition from the early English to the decorated style includes some examples of great beauty. This transition is seen in the western windows of Bray; the chancel of Ashampstead; the east window of Brightwell, Berks; the very singular chancel of East-Ilsley; and the chancel of North-Stoke, recently taken down and rebuilt, or rather restored, in excellent taste, under the care of the vicar, Mr. Twopenny. The great windows at Lewknor, Basildon, and North Moreton chancels, very much resemble each other, and are good specimens of this transition style, as is the tower of Ardington, the chancel of Great-Coxwell, the north aisle and chancel of Stanford in the Vale, parts of Lyford, and the chancel of Draycot Cerne. Complete decorated churches are rare, but examples of the style in the shape of windows, and other additions, are very common indeed. Langley and the north aisle of Bray are decorated; and at Shottesbrook is a complete cross church, with tower and spire all of one date. Further westward, in the same style, may be enumerated, parts of old Windsor; a south aisle and chapel at Clewer; the chancel south door of Basildon, late in the style, and resembling certain monumental canopies at Aldworth; the south aisle of Aldworth, a very complete example; the font of South-Stoke; the nave of North-Stoke; and the chancel of Moulsford, all early in the style. The north transept of Blewberry; the nave and aisles of Brightwell, Berks; the nave, chancels, and very early south chapel at North-Moreton; parts of Benson; the very early nave of Warborough; the nave and chancel of Didcot; parts of Lockinge; East-Hendred; the chancel, north aisle, and other parts of Ardington; the nave of East Hagbourne; and the nave, aisles, and curious wooden south porch of Long Wittenham. Besides these may be mentioned the north door of the nave of East-Ilsley; the nave and chancel of Didcot; much of Steventon; Spersholt tower and south transept; the transepts of Childrey; Bradenstoke Abbey; the south aisles of Sutton-Benger, and Christian-Malford; the nave and transepts of West Hannay; parts of Compton-Beauchamp; the tower and nave of Langley-Burrel; and Chippenham chancel. Bristol itself contains some very fine decorated examples. Such are the choir, transepts, and tower of the cathedral, as they at present appear; parts of the Bishop's Palace, of an early date; the beautiful north porch of Redcliffe; and a great part of the Mayor's Chapel.

* From "History and Description of the Great Western Railway, including its Geology, &c.; with numerous Views." See p. 255, *ante*. Bogue, Fleet-street.

To the decorated period, also, are due most of those fine monumental effigies of knights and ladies, that are not unfrequently found even in very obscure parish churches. Such are to be seen at Burghfield, beneath an early decorated niche; at Dorchester, at Cholsey, Childrey, Wantage, and Bathampton. In the church of Aldworth, there are no less than ten figures, of which seven lie beneath canopied niches. To this same period, also, is to be referred a description of decorated window with a flat top, not generally known, but extremely common in the vale of Berks, and near Oxford. It resembles exactly in its general figure and dimensions the usual late perpendicular window, but its dripstone and mouldings are decidedly decorated, and the heads of the light generally, if not always, trefoiled. Among very many examples we may mention those in the churches of Streathley, in the north aisle; South-Stoke, south aisle; West-Hendred; East Lockinge; Dorchester, north aisle; and Drayton and Cowley, near Oxford.

Among the numerous examples of the perpendicular style may be mentioned the church of West Drayton; the towers of Henley and Compton; the church of Ewelm; the towers of Dorchester, Warborough, Henley, and St. Mary's, Wallingford, all very late in the style; the church of Yattendon; the early tower of East Hendred; the south aisle of Didcot; the towers of South-Stoke, Long and Little-Wittenham, North-Moreton, East-Ilsley, East-Hagbourne, Aston Tirrold, and Blewberry; the tower and south porch of Childrey; the chancel and south porch of Lyneham; the towers of Sutton-Benger, Shrivenham, South-Marston, Chippenham, Draycot-Cerne, Bitton, and Keynsham, are in this style, as are the excellent chapels attached to the churches of Faringdon and Chippenham. In the valley of the Avon the perpendicular style preponderates: the tower of Box is late perpendicular, as is the whole of Bath Abbey Church; the towers of Newton, St. Loe, Bitton, and Keynsham, are late in the style; that of Brislington is a little earlier, and a fine example; Bath-Easton tower also is a particularly handsome one. In the city of Bristol the perpendicular remains are excellent; among them may be mentioned much of Redcliffe, partaking also of the decorated character; the lofty tower and church of St. Stephen; St. Augustin's, St. John's, St. Peter's, St. Thomas's, and the Temple; also the vestry, and a late perpendicular altar-piece at the Mayor's Chapel.

The architectural antiquities are almost wholly ecclesiastical. There is, however, a singular late perpendicular house at Ockwells, in Bray parish; and at Sutton Courtney is a house, a part of which is of early English date. The Abbey of Bisham, now a dwelling house, presents some good early English masonry, including a fine door. At Great Coxwell, an abbey barn in the decorated style remains quite perfect, and is certainly the most magnificent barn in the kingdom. There is also a good decorated barn at Bathampton."

NOTES IN THE PROVINCES.

The amount of the fund collected for the Birmingham baths is at present about 6,000*l.*; but it appears that 18,000*l.* might have been now in hand, had working committee-men been appointed; eligible sites have been obtained. ——Baths and wash-houses are also about to be supplied to the poorer inhabitants of Worcester.——The tender of Messrs. Forman and Frow (the contractors for the alterations in the river at Wisbech), being the lowest for the erection of the Wisbech Museum, has been accepted.——The foundation-stone of the new church in the Victoria-road, Seacombe, was laid on Saturday week. It is to be dedicated to St. Paul, and capable of accommodating 800 persons. Mr. Hay, of St. George's-crescent, is the architect; and the cost is estimated at 2,000*l.*——The new pier at Beaumaris was opened for the accommodation of the public on Tuesday week. There is now convenient landing at all times of tide.——Other 500*l.* are to be expended on the alteration and improvment of the Bishop of Exeter's episcopal residence; altogether 3,500*l.* have been allowed by the Ecclesiastical Commissioners for this purpose.——St. George's Church, Kingswood, Gloucestershire, having been rebuilt at an expense exceeding 2,000*l.*, was to be opened on the 9th current.——The pier-heads at Bridport are about to be run out several feet further into the sea.——The foundation-stone of the new steam establishment at Keyham, Devonport, will be laid in August by the present First Lord of the Admiralty, if then in office. The contractors are Messrs. Baker and Son.——The church at Nafferton is undergoing considerable repair and decoration, and an organ is being built for it.——The sum of 3,800*l.* has been collected for the erection of the new chapel of ease at Cirencester, on the plan of Mr. Scott, the architect of the church near the Swindon station. It is to consist of a north aisle, with a porch, a nave, and chencel, to which a tower and spire may be added as the funds permit. A further sum of 1,600*l.*, however, is required.——The foundation-stone of the addition to Tintern Parva Church was laid on Monday week before last. A portion of the old walls is to be also rebuilt, and the church repewed when thus renovated and enlarged.——The alterations of Durham Cathedral, with the view of restoring the interior to something like its original state, have been for some time in progress. The chapter-room is being restored, the columnar work and tracery being covered over with stouthing and plaster; but the room has been curtailed in its dimensions to add to the size of the deanery gardens.——The second reading of the Places of Worship (Scotland) Bill, to compel the landed proprietors to yield sites for buildings in connection with the Free Church, was moved by Mr. Fox Maule in the Commons on the 11th instant, but opposed by the Government; Sir James Graham moving that it should be read that day six months. The debate was adjourned to the 17th instant.——A new church is in the course of erection at Sutton Waldron, near Shaftesbury, Dorsetshire, at the sole expense of the incumbent, the Rev. A. Huxtable. It is in the decorated style, consisting of nave, chancel, south aisle, western tower and spire, and south porch. Mr. G. Alexander, of London, is the architect.

ACTION AGAINST A DISTRICT SURVEYOR.

An action for slander of title, brought by Mr. Pater against Mr. Baker, was tried on Saturday last in the Court of Common Pleas. We obtain the following particulars from the *Morning Post:*—

The plaintiff in this case is an attorney, the defendant a district-surveyor. An auction took place, on the 2nd of last March, at which certain houses of the plaintiff's, in Agar-town, were put up for sale. The defendant on this occasion entered the auction-room, and, it was alleged, uttered as nearly as might be the following words:—'My object in attending this sale is to warn purchasers, if any there should be, that I cannot allow those houses to be finished until the roads are made good. I have no power directly to compel you to make the roads, but I can stop the completion of the houses until the roads are made good.' On the part of the plaintiff it was now stated, that he had lost the opportunity of selling his property in consequence of the observations made by defendant. Subsequently to this, referees were appointed by the parties, for the purpose of examining the roads in question, and of reporting whether they had or had not been so constructed, with respect to width and so forth, as to fall within the provisions of the Metropolitan Building Act of the 7th and 8th Victoria. On the 16th of March the referees had a meeting, and the defendant Baker was declared to have made this statement. 'The reason why I pursued Pater (the plaintiff) was, that I could not attack Agar, the ground landlord, and Pater being the steward and collector, I thought he was the best person to attack.' These referees made their award on the 28th of March, and decided that the roadways were rough and unfinished, but were of sufficient width to comply with the requirements of the Act of Parliament. The plaintiff thereupon commenced his action against the defendant, alleging that he had maliciously interfered to prevent the sale of his (the plaintiff's) property; and he sought to recover 18*l.* 12*s.* for the expences of advertisements and other matters connected with the abortive sale. These being the facts, the question was, had the defendant acted maliciously, or simply and *bonâ fide* in the conscientious discharge of his duty as district surveyor. On the one side it was argued that malice must be inferred—first, from the fact, that there was no ground for the surveyor's interference at all; and, secondly, from the fact that the sale had been advertised for several weeks previous to the day the auction was to have taken place. The defendant, therefore, in coming forward at the critical time and in the manner which he did, could have had no other object in view than to injure the plaintiff Pater. On the other hand, for Mr. Baker, the surveyor, it was contended he could not be supposed to have acted maliciously, as he had no ill feeling towards Pater; and secondly, because he had, in the discharge of his duty, on the 27th of February, given notice that he required the owners of these houses in Agar-town, to have the roads in question properly repaired. This shewed that before the day of sale, the surveyor had intimated his opinion that the roads were not in the state required by the Act of Parliament, as well as might be, even though they were of the proper width. It was urged, too, that in point of fact the sale was not lost, as the property might have been sold as soon as the objection raised had been removed by the award of the referees.

Mr. Justice Erle left the case on the facts stated to the Jury, who found for the plaintiff Pater, with 18*l.* 12*s.*

THE PROGRESS OF ORNAMENTAL DESIGN.

At a meeting of the Archæological Institute, on the 5th instant, Mr. Birch introduced the subject appointed for discussion,—"Personal ornaments of all periods;" and in the course of his address offered a few remarks on the causes which have influenced the general character of *ornamental design*, as distinct from *art* on the one hand and mere *manufacture* on the other. He observed that the earliest ornaments of every race were doubtless some natural production,—flowers, leaves, berries, amber, ivory, shells, minerals. Afterwards, as skill in metallurgy and other arts increased, these substances were imitated in some more convenient material. The types of the original objects, thus becoming perfectly familiar to the race, would exert a considerable influence on the character of their ornamental design for many generations. Again, the primary substances thus employed were replaced, in the progress of wealth, commercial intercourse, and mechanical skill, by more esteemed or abundant materials. From the influence of habit, the class of ornament proper in one material was retained improperly in another,—though sometimes with very felicitous effect. Thus, the ornaments of the earliest Greek and other fictile vases seem imitations of the basket-work of an earlier generation; the glass necklace of the Celts was copied in the metallic torques. This process of irregular adaptation is probably always going on in the art of a race,—like irregular formations and self-adjustments of their language.

In that subsequent period of the history of a race when architecture, sculpture, and painting, are distinctly and fully developed, these arts have exercised a great influence over the contemporary ornamental design. As the principles of design became more clearly understood, the love of imitation common to man led to the introduction of the forms of nature in ornamental design. This was not, as in the first efforts of the savage, the mere reproduction, in a new material, of animal and vegetable substances, but the artistic representation and adaptation of animal and vegetable life. The process seems to have been as follows:—In the fashioning of any object intended for use, the dictates of a common necessity have given birth to much the same type in the productions of races the farthest apart in date and situation; but, after the fulfilment of the primary want, there arises the desire to adapt, in the structure of the object, analogous forms from vegetable or animal life, and to incorporate the work of nature and of man into one design. The Greek race appears to have possessed extraordinary natural capacity for carrying out this love of imitation. An intuitive tact led them to discern in nature, and borrow in art, the forms best suited for the required design. A never-failing sense of beauty shaped these selections into harmonious composition, and their practical genius kept

always in view the prescribed material and the prescribed form,—the conditions subject to which work was to be executed.

The principles of artistic imitation having been acquired by the artisan in the school of the great sculptor or painter, his general principles of composition would be further regulated by the same masters; that is to say, if the compositions of the great artist of a particular race and period were contained within a certain range of lines, with more or less of flow, intricacy, or simplicity, the same characteristics may be distinctly recognized in the ornaments produced by the artisan of the same race and period. In some cases, we see the mouldings and decorations of architecture directly borrowed, as in the Mæander and other patterns of the Greek robe.—The character of ornamental design would be further influenced —1. By the desire to imitate the exotic fashions and patterns introduced by commerce from other countries. 2. By the associations of religion: certain forms, because originally symbolical, were adopted in the fashion of articles of household and daily life, and retained long after the meaning of the symbol had been forgotten. It has been the great difficulty of the archæologist to discern when the symbol was first employed as such in ornament, and when it became purely conventional.

VENTILATION OF MINES, WELLS, SEWERS, &c.

Struve's patent mine ventilator seems to be a very obvious application of a very simple principle, viz., that on abstracting a portion of atmospheric air from one end of any receptacle, an equal portion will rush in at any other opening to supply its place. That such an application of such a principle, therefore, should be held entitled to protection by patent in the present day, is a melancholy proof of the indifference amongst miners to the frequent destruction of human life from want of ventilation in mines. In the application of Struvé's invention, the upcast shaft is closed, superseding the necessity of the furnace hitherto used, and is connected with, and forms a passage for the air from the mine, to one or two large air pumps of either single or double action. The lower part of the exterior case contains water, which, while it forms the packing in which a hollow cylindrical piston works, keeps it hermetically sealed. The apparatus may be made almost of any size, so as to take out of a mine any quantity of air, whatever may be its depth or extent. It may also be made to create a partial exhaustion of the mine, by closing the downcast shaft, which, if repeated several times, would effectually drain the goaf of a colliery.

"The causes which have operated to prevent the improved ventilation of mines, are, we have no doubt, numerous," says the *Mining Journal*; "in some cases, objections have been made to the expense of adopting untried plans which may fail; in others, a prejudice against all innovation on the good old methods has prevailed; and, in too many cases, we believe cupidity, on the part of butties and underground agents, has been the operating cause. Whatever may have been the unfortunate circumstances, which have perpetuated a system fraught with danger to human life and property, there is now no further excuse for delay."

In connection with the subject of the ventilation of, or removal of bad air from, wells and sewers, as well as mines, a recent suggestion of some value may here also be noticed. The methods hitherto in use for removing carbonic acid, or sulphurated hydrogen gases, from situations where they have accumulated in such quantities as to become fatal to human life if taken into the lungs, are slacked lime water, or currents of air, the first slow and the latter not always practicable. M. Faucille has lately suggested, and successfully acted upon, a plan for the complete absorption of these gases. In sinking a well at Vichy, the carbonic acid was evolved in such quantities, that the men could scarcely proceed with the work. He erected a small boiler, on the principle of the œlopile, the tube from which reached to the bottom of the well. A powerful steam blast was kept up—which at first was opaque, from the gas uniting with the lime, contained in the water, but soon became transparent—and in thirty minutes the works could be proceeded with.

LIST OF NEW PATENTS

RELATING TO ARCHITECTURE, ENGINEERING, &c. GRANTED FOR ENGLAND.

Furnished by Mr. A. Prince, of the Office for Patents of Inventions, Lincoln's-inn Fields, London.

[SIX MONTHS FOR ENROLMENT.]

John Carter, Fleur-de-lis-street, London, ivory merchant, for improvements in paddle wheels. May 5.

Alfred Vincent Newton, of Chancery-lane, mechanical draughtsman, for certain improvements in machinery for manufacturing screws. May 5.

William Church, of Birmingham, for certain improvements in machinery, to be used in making candlestick pans, and various other articles which are usually produced wholly or in part by means of the process called stamping; and also in machinery for making sockets or tubes for candlesticks and tubes, or tubular articles applicable to various other purposes. May 5.

Thomas Melling, of the firm of Melling and Co., Rainhill, Lancashire, engineers, for certain improvements in steam-engines, marine, stationary, and locomotive; and in machinery and apparatus connected therewith, parts of which are also applicable to regulating the flow of fluids generally. May 7.

Edward Shepard, of Trafalgar-square, gent., for certain improvements in the construction of gates, doors, shutters, and other articles of the like construction, and in fastenings to be attached thereto. May 7.

Mark Rollinson, of Brierly-hill, near Dudley, engineer, for certain improvements in steam-engines. May 7.

Alexander Angus Croll, of Suffolk-street, Clerkenwell, chemist, for improvements in gas meters. May 12.

Julius Jeffreys, of Norfolk-crescent, Hyde-park, gent., for improvements in steam-engine boilers and furnaces, and improvements in propelling vessels. May 13.

Stephen Perry, of Woodland-place, St. John's-wood, gent., for certain improvements in the manufacture of rings, straps, bands, and bandages, cords and string, and in their application to clockwork, to locks, and other fastenings, to presses, to books, to paper-holders, to candle-lamps, to window sashes, to doors, to window-blinds, to seats and surfaces for lying and reclining upon. May 19.

Hugh Greaves, of Hulme, Manchester, engineer, for improvements in the construction of railways and the carriages to be used thereon. May 22.

John Walker Wilkins, of Stanhope-street, Hampstead-road, for certain improvements in water-closets. May 26.

Charles Bertram, of Gateshead, Durham, Esq., for certain improvements in the manufacture of artificial fuel, and in the application of the residual products to useful purposes. May 26.

Timothy Kenrick, of West Bromwich, iron-founder, for improvements in glazing and enamelling the surfaces of cast-iron. May 26.

James Montgomery, of Salisbury-street, for certain improvements in the construction of steam-boilers and steam-engines, and in steam vessels, and in the machinery for propelling the same. May 26.

Edward Alfred Cowper, of Smethwick, near Birmingham, engineer, for improvements in the manufacture of railway chairs. May 26.

Nathan Defries, of St. Martin's-lane, engineer, for improvements in gas meters. May 27.

Richard Marvin, of Portsea, Southampton, gent., and William Henry Moore, of Southsea, for improvements in gratings of metal or wood for the fronts of houses, and general purposes for the admission of light and ventilation. May 28.

Henry Seymour Westmacott, of 28, John-street, Bedford-row, Middlesex, gent., for an improvement in the construction of rotatory engines. May 30.

IRELAND.

Furnished by Rich. Telford, Office of Patents, 5, Harcourt-street, Dublin.

John Nott, of the City of Cork, gent., for certain improvements in the means of communicating intelligence from one place to another. April 20.

George Howell, of 4, Larkhall-lane, in the County of Surrey, gent., for coating with a metal the surface of articles formed of copper or copper alloys or iron wrought or cast. May 5.

William James Cantelo, of No. 4, Paris-street, North, Lambeth, in the County of Surrey, gent., for improvements in apparatus for hatching eggs, and raising the young, and for heating hot houses and other buildings. May 5.

Henry Smith, of Liverpool, engineer, for improvements in the manufacture of wheels for railways, and in springs for railway and other carriages, and in axle guards for railway carriages. May 13.

Miscellanea.

Oxford Architectural Society.—This society met on the 3rd inst., the Rev. the Master of University in the chair. In the list of presents received since the last meeting were a model of the statue of Cardinal Wolsey, at Christ Church, a lithograph of the remains of a sepulchral chapel, presumed to be that of Abbot Wallingford, recently discovered built up in the wall of the south aisle of the Abbey Church of St. Alban, presented by the St. Alban's Architectural Society. Mr. G. G. Scott exhibited some tracings of stained glass, from churches in Berkshire. After some observations upon them by the president, Mr. Parker remarked upon the usefulness of tracings of this kind, and recommended members to employ themselves, during the vacations, in procuring copies. They were most valuable, both on account of their practical utility as models, and as being, in so many cases, likely to survive after the frail originals had perished The Master of University made some suggestions as to the arrangement of floor tiles, the effect of which he considered would be heightened by the intermixture of plain tiles among the enriched ones. Mr. Boutell said that such was the arrangement in many ancient churches. He added, that the St. Alban's Architectural Society would gladly entertain any members of the Oxford Society, at their next meeting, June 17th. Mr. Parker made some remarks upon the so-called Roman tiles at Colchester, which he believed were of much later date, in opposition to a view incidentally expressed in Mr. Addington's paper.

Antiquities at Gravesend.—The new fortifications on the site of the burial-ground of the chantry, erected by Aymer de Valence, are rapidly proceeding. The original chapel, though cased over with modern brick work, is still standing. It is now converted into the military hospital. In the recent alterations necessary to such conversion, partitions, &c., were removed, which then developed its original shape; it was 59 feet long and 17 feet 7 inches in breadth, within the walls, and was covered with a cove roof, probably originally lined with boards. The height of the edifice from the floor to the highest point of the cove was about 16 feet.

St. Barnabas's Schools, Pimlico.—On the 11th instant, as we learn from the daily papers, the foundation-stone of these schools was laid by Earl Brownlow, upon ground in Queen-street, given by the Marquis of Westminster. It is intended very shortly, in connection with these schools, to erect a church exclusively for the poor, at an expense, including the schools for 600 children, and a parsonage, of 14,000*l.*, to be raised by alms, of which 8,000*l.* has already been contributed. As usual, the architect's name does not appear.

New Work on Gothic Ornament.—The prospectus of a new monthly work of examples of Gothic ornament has lately been issued. The author, Mr. J. K. Colling, proposes to give decorative enrichments of various dates, classified, and drawn to a larger scale than those in existing books. The plates will be lithographed with the pen, and some of them will be given in colour.

The Societies.—The Royal Society and Society of Antiquaries terminated the session on Thursday last, probably more to the satisfaction of the various officers than usual. On Monday, the Institute of Architects will hold its last meeting for the season.

St. James's, Bristol.—It is intended to raise a fund for the repairs, painting, and other improvements of this church.

British Archæological Association.—Arrangements are in active progress for the ensuing congress at Gloucester.

Preservation of Monuments in France.—The *Moniteur* publishes a report presented to the Minister of the Interior, by M. Mérimée, Inspector of Historical Monuments. It appears from this document that, notwithstanding the insufficiency of its resources, the Committee of Historical Monuments has not only not suspended any of the grand restorations that were undertaken by it, but has even been able to purchase some monuments which would otherwise have been lost. The most important is the church of St. Julien, at Tours.

MEETINGS OF SCIENTIFIC BODIES

During the ensuing Week.

Monday, June 22.—British Architects, 16, Grosvenor-street, 8 P.M; Geographical, 3, Waterloo-place, 8 P.M.

Tuesday, 23.—Civil Engineers, 25, Great George-street, 8 P.M.; Syro-Egyptian, 71, Mortimer-street, Cavendish-square, 8 P.M.

Thursday, 25.—Royal Society of Literature, 4, St. Martin's-place, 4 P.M.

Friday, 26.—Philological (London Library, 12, St. James'-square), 8 P.M.

NOTICES OF CONTRACTS.

[We are compelled, by the interference of the Stamp Office, to omit the names of the parties to whom tenders, &c. are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent Garden.]

For building a Crescent of thirty-five houses at New Peckham.

For the erection of the Trinity Church National Schools at Nottingham.

For the repair, in one lot, of the whole of the roads of the Yeovil Turnpike-road Trust, being about 26 miles in length, for 7 years.

For the erection of a parsonage-house at Sandown, Isle of Wight.

For the repair of Lingfield church, Surrey; comprising principally repairs of the roof, masonry, and new paving.

For a supply of Castle-hill paving, 1st class, 2½ inch thick, at per superficial foot, for the town of Hertford.

For a supply of 3-inch tooled Yorkshire paving, at per superficial foot.

For taking up, preparing, and relaying old York paving at per superficial foot.

For a supply of granite curb, 12 inch by 6 inch, at per running foot.

For taking up, preparing, and relaying old curb at per running foot: the whole to be properly squared and bedded in mortar, including every material required for the same.

For the erection of four cottages at Mere, in the county of Wilts.

For the purchase of a large quantity of excellent building materials, near Norwich, comprising beams, lintels, sashes, doors, &c.; a quantity of Portland stone coping, 2,000 white lumps, 1,000 pavements, &c.

For the formation of the extension line of the Chester and Birkenhead Railway, from near the Grange-lane station to the new docks at Bridge-end, Birkenhead, comprising bridges, excavations, embankments, culverts, drains, retaining and fence-walls, and all other necessary works for completing the same, ready for the ballast and rails.

For the erection of a new permanent station at Monk's Ferry, comprising clay and rock excavations, ballasting, laying rails, providing and fixing turn-tables, &c.; carpenters' and joiners' work, brick and stone work in station walls, and about 300 squares of iron roofing.

For the erection of coal, stone, and lime stores at Pool-street, near Grange-lane station, on the above line, consisting of excavation, embankment, building, retaining and other walls of brickwork, timber, and iron work, and road making.

For a supply of iron to the Forth and Clyde Canal Company for one year, from July 1.

For a supply of castings to the same Company for a similar period.

For a supply of nails for same period.

For a supply of British and foreign timber.

For a quantity of lime, bricks, and cement.

For a supply of paint, oils, &c.

For a supply of lead, all for one year, from July 1.

For the excavation and construction of certain tanks, tunnels, filter-beds, and other works connected with the water-works at Spon-end, Coventry (extension of time).

For the erection of about 2,280 lineal feet of quay-wall, &c. for the Clyde Trustees, in continuation westward of the quay-walls on the south side of the harbour of Glasgow.

For completing an extensive addition to Rear-Admiral Duff's mansion-house of Drummuir, in the county of Banff. N.B. Stamp tenders.

For alterations in the remaining portion of the present mansion-house of Drummuir above named: separate tenders.

For supplying Her Majesty's several Dockyards with tools.

For the sub-letting of the stone-work required in the works of the Caledonian railway, in the vicinities of Crawford, Abington, Lamington, Thankerton, and Carnwath.

For working a number of quarries engaged by Messrs. John Stephenson and Co. in the above works, with the carting and building, together or separately.

For the reconstruction of the parish church at Brimington, near Chesterfield, with alterations of the former plans.

For building sewers in Temple-lane, Playdell-lane, Glitspur-street, and other places within the City of London.

For a supply of iron and steel, lime and cement, sand and gravel, oak, fir, mahogany, &c.; window glass, paints, &c., for Pentonville prison.

For a supply, for one year, of Haytor, Aberdeen, and Carlinose kerb, 12 inches by 8, per foot lineal, for the Southampton Paving Trust.

For a supply, for one year, of Hayter, Aberdeen, and Carlinose half-sovereigns for channels, &c., for the Southampton Paving Trust.

For a supply, for one year, of 2½-inch tooled York paving, for the Southampton Paving Trust.

For a supply, for one year, of best broken Guernsey granite, gravel, lime and sand, for the Southampton Paving Trust.

For paving and repairing the carriage and footways of the parish of St. John, Clerkenwell, &c,

For Lighting and Warming the new workhouse of the Clifton Union, and for providing a cooking apparatus for 1,200 persons (extension of time).

For the erection of a school-house in connection with the Presbyterian congregation of Ballynahinch, Ireland.

For the painting of the meeting-house of the above congregation.

For the excavation of the new reservoir in Old Park, Belfast, and conveying to the Breast embankment the clay and materials required for its formation.

For supplying the vestrymen of St. Marylebone, Middlesex, with flints, gravel and Hoggin.

For the bricklayers', carpenters', smiths', plumbers', and painters' and glaziers' works (for the vestrymen of St. Marylebone), at the churches, chapels, court-house, &c., of the said parish.

For supplying the vestrymen of the parish of St. Marylebone with Guernsey, Groby, or Whitby chippings, or other hard materials, calculated for the repair of roads, &c.

For the execution of that lot or portion of the Dundee and Perth line of Railway from Pitfour to Barnhill,—a length of 4 miles 1113 yards, or thereby. The works not heavy.

COMPETITION.

The Blackburn and Preston Railway Company offer a premium of 100*l.* for the best design, and 50*l.* for the next best design for laying out the station land, and planning buildings, &c., for the accommodation of the goods traffic at Blackburn.

APPROACHING SALES OF WOOD, &c.

BY AUCTION.

At St. Osyth Priory: a large quantity of oak and ash timber trees, bavins, &c.

At Chingford, Essex: 300 oak trees and 250 seconds.

At Chamberlain's Farm, Clavering: 85 oak, ash, and elm timbers, 20 oak saplings, 100 pollards, &c.

At Newton Burgoland, Leicestershire: 166 ash, 28 oak, and 17 elm and beech timber trees.

At Langley Park (Norfolk?) about 100 oak timbers, 400 oak stands, some ash timber, &c.

At the Gawthorpe estate, near Padiham, Lancashire, upwards of 1,000 oak trees.

At the Viaducts, Accommodation-street, Vauxhall, Birmingham: an assortment of building materials.

At Hurn Farm, near Crow, Ringwood: 54 oak trees, 22 fathoms of wood, &c.

At the Creek Ironworks, Deptford: two high-pressure steam-engines, sawing machines, &c.

At Union-street, Birmingham: two large foundries, four smaller foundries, a 24-horse power steam-engine, a large turning-lathe, and other useful machinery, &c.

At Fakenham, Norfolk: premises established for nearly a century in the plumbing, glazing, and painting business.

At Sutton, Coldfield: 12 lots of oak timber.

At Gala, near Galashiels, N.B.: 40 peeled oaks of large size, also a number of lots of peeled larch, suitable for railways.

At Soham, Cambridgeshire: a stock in trade, comprising 1,000 feet of well-seasoned planks, 500 feet of elm and poplar boards, with several lots of tools, benches, &c.

At the Imperial Press Factory Yard, Cumberland-street, Curtain-road, Shoreditch: a stock in trade of fancy and other woods, circular and vertical saw frames and saws, zinc plates, iron screw and other presses, &c., &c.

TO CORRESPONDENTS.

"*Reader.*" The water-closet must be constructed of incombustible material. Notice must be given to the district Surveyor.

"*Kentish Rag Stone.*" A correspondent wishes the name of the principal quarryman residing either in Lenham, Sevenoaks, or Maidstone.

"*C. & V.*" We cannot promise to go so far, but will try.

"*J. W., York.*" The paper shall appear. The competition for the Royal Medal is not confined to members of the Institute. We will give the particulars soon.

"*Country Builder.*" If your estimate was a fair one, you have a claim in justice, though probably not in law.

"*A. F.*" Questions as to ancient lights always depend much on the particular circumstances of the case. A reply without full knowledge of these might mislead.

"*A. C.*" (*Newcastle*), shall hear from us.

"*F. W. B.*" How does the proposed society differ from one already before the public?

"*Stain for Oak.*" A Correspondent inquires "what is the best mixture to stain new oak carving a good nut brown, to imitate old work."

"*Llandilo Church Competition.*" Competitors are becoming impatient, and urge us to ask for a decision.

"*H. M. (Bristol).*" We are not aware what the local acts are (if any), but should say, no person could use your drain without paying for it, and with your permission.

"*Luton Town Hall Competition.*" Some correspondents complain of the decision. We shall be glad to receive correct information.

"*R. Mulford.*" The sale was by auction, and is over.

Received.—"J. D. P.," "J. W. Kroy," "Y. R." (Clapham), "Rex," "A. A.," "Observer."—"Railways; their Rise, Progress, and Construction," by Robert Ritchie, C.E., &c. (Longman and Co., London). An interesting and useful work to which we shall refer.

ADVERTISEMENTS.

FINE ARTS.

By Her Majesty's Royal Letters Patent.

LORIMIER'S TRANSPARENT PLANES for Perspective Drawing; BENJAMIN WEST, Patentee.

"This Instrument will enable Artists and others to make any Drawing, whether from Nature or Models, in perfectly true perspective, so that a likeness or landscape may be taken in a few minutes absolutely perfect. It is used by her Majesty's Royal Sappers and Miners, Chatham. To Travellers it would be found serviceable, since it can be employed without the knowledge of drawing."—*Art Union.*

Price 10s. and 20s. Apply for Agents to BENJAMIN WEST, 2, St. James's-walk, Clerkenwell.—Sold by BARRITT and Co., 173, Fleet-street, London; GRIFFIN and Co., Glasgow, and by all Fancy Stationers, &c.

FURNITURE.

WANTED to PURCHASE, from 200*l.* to 500*l.* worth of Second-hand FURNITURE, in large or small quantities, for which a fair price will be given in cash, without any deduction for valuation, and removed at the purchaser's expense; linen, china, glass, books, pictures, and musical instruments included, if required.—Apply to Mr. J. CHAPMAN, 6, Great Russell-street, Covent-garden. Valuations made for the legacy duty, rents collected, &c.

FIRE BRICKS.

WARD, Honduras Wharf, Bank-side, and St. Michael's-alley, Cornhill, has just landed a large quantity of his very superior manufactured Fire Bricks, of Stourbridge, Welsh, and Newcastle. Prices very low. Shipments made for the East and West Indies, &c., with the greatest promptness. Gas companies, engineers, builders, and all large consumers supplied from ships in the river at a much lower price. A very large stock on hand of Bricks, Lumps, Tiles, and Clays.

River sand and gravel by freight to any wharf and dock.

PORTER'S CORRUGATED, and PATENT GALVANIZED IRON ROOFING WORKS, Southwark-bridge (and the Grove), Southwark. At the above Works, the Public are secure in having the superior make, and by the Patent process of Galvanizing Iron as first introduced into this Country, with many improvements in its application to Roofs, Buildings, &c. Every description of Building, Railway, and other Iron and Smith's work Manufactured of the best quality. Iron Fence and Hurdles as usual.—The Trade Supplied.

MOREWOOD AND ROGERS' PATENT GALVANIZED TINNED IRON.

T. W. BEALE begs to acquaint the public that he is prepared to lay roofing, plain or corrugated, fix pipes, gutters, &c. Also chimney-tops and ventilating cowls of every description; also water and oil cisterns, of this incorrodible and fireproof metal. He manufactures all kinds of baths, as hip, shower, Roman, open, slipper, sponging, foot, children's, and self-heating baths; also toilet-cans and pails, slop-pails, coal-scuttles, cash and deed-boxes, and fire-proof safes of every description, 10 per cent. cheaper than any house in London.

The PATENT GALVANIZED TINNED IRON is applicable to the following uses:—The Lining of Ships' Store Rooms, Ships' Water Buckets, Water Jugs and Receivers, and for almost every purpose to which zinc, tin, copper, brass, or any other metal is now applied; is more durable, and manufactured at much less expense. An experienced workman sent to any part of the kingdom. All orders punctually attended to. For particulars, apply to T. W. BEALE, 46, Bridge House-place, Newington Causeway.

PATENT GALVANISED TINNED IRON.
(MOREWOOD AND ROGERS' PROCESS.)

ARCHITECTS, SURVEYORS, BUILDERS, and CONTRACTORS are respectfully informed they can be supplied with this invaluable metal for building purposes, of the best quality and lowest terms. It is superior in every respect to zinc, and two-thirds less price than 7lb. sheet lead for roofing, no woodwork being required, but iron rafters only, 21 inches apart, rendering the whole roof fire-proof. This mode of covering roofs is cheaper than Lead, Zinc, Tiles, or Slates. Parapet and other Gutters formed and fixed, also rain-water pipe, heads, eave gutter, baths, stove and funnel pipe, cisterns and water-closets fixed. The sheets are 6 feet long by 2 ft., 2 ft. 6 in. and 3 feet wide, and 9oz. to any required weight per foot, and can be had either plain or corrugated.

Please apply to CHARLES GELL, Junior, No. 5, Quick-set-row, New-road, St. Pancras, where references and testimonials of the highest respectability of extensive works already done can be had.

By Her Majesty's Royal Letters Patent.

MOREWOOD and ROGER'S PATENT GALVANIZED TINNED METAL.—This article was at first sold under the name of Galvanised Tin Plates, but the Patentees finding that the public, in some instances, overlooking the word Tin, confounded the article with Galvanised Iron, and that the character of their metal has thereby sustained injury, are desirous of giving it a name so distinctive as to prevent such mistakes, and consequent disappointment to purchasers in future. They therefore respectfully request purchasers to inquire for MOREWOOD and ROGER'S PATENT GALVANIZED TINNED IRON. In order to enable the public readily and at first sight to distinguish between the two metals, it may be well to inform them, that Galvanised Iron has a plain zinc-like appearance, while M. and R.'s Patent Galvanised Tinned Iron has a smooth crystalline surface.

MOREWOOD and ROGER'S PATENT GALVANIZED TINNED IRON, Patronised by the Admiralty and the Honourable Board of Ordnance, being extensively used in her Majesty's Dock-yards, at the Tower, and elsewhere, for every variety of Roofing, and other purposes, where a strong, light, cheap, and durable material is required.

It has been found by experience that this article is beyond all comparison superior to zinc; possessing, as it does, all the advantages arising from the strength and firmness of iron, combined with perfect immunity from rust; whilst it is free from the very serious objection which applies to zinc, viz. its contraction and expansion, consequent upon every change of temperature, and from which circumstance leakage must of course result.

This material is not likely to be destroyed by fire, as is the case with zinc and lead, which melt and run down, thus freely admitting fresh air to the fire, and causing it to burn more fiercely. It is, therefore, obviously well adapted for all the purposes above-named, and most importantly so, when there is the possibility of fire. It is also peculiarly suitable for chimney-tops, gutters, spouting, and out-door work generally, possessing the strength of iron, without its liability to corrosion. It is by far the most economical metal roofing that can be obtained, in consequence of its strength, as it may be laid without boards, and upon the lightest rafters.

This mode of preserving metal from rust does not only apply to sheet-iron, but also to manufactured iron in any form, as bolts, nuts, hinges, nails, &c. &c.

For full Particulars apply to S. HOLLAND, 24, Gracechurch-street.

DRUCE'S No. 2, WHARF, late Paradise-wharf, Chelsea.

TO THE TRADE.—Parties desirous of delivering Timber Deals, Stone, Bricks, or any other goods, in the districts of Chelsea, Brompton, Fulham, Kensington, &c. &c., will find great facilities of Wharfage, Cranage, or Delivery, by applying as above. A weighbridge and draw-dock.—N.B.—Depot for Glass Pantiles.

MOULDINGS BY MACHINERY.

W. BUDDLE, Sawing, Planing, and Moulding Mills, and Marble Works, 3, IRONGATE WHARF, PADDINGTON, begs to inform the Trade, that he has erected most superior Machinery for working Wood Mouldings, and ventures to hope the reduced Prices and excellent Workmanship will ensure him an order as a trial. A Lithographed sheet, with 40 designs of various mouldings will be forwarded free, upon application.—A Large Stock of well-seasoned MOULDINGS ALWAYS ON SALE.—Wood Sawing and Planing in all its branches executed in the best manner and lowest price.—Large covered Premises to Store Goods, and Drying Rooms to season Boards, fit for immediate use.—Marble and Stone sawing by Machinery.—Marble and Stone Chimney Pieces, at the lowest prices, by Machinery.

TO BUILDERS AND OTHERS.

R. OLIVER'S SAW MILLS, Surrey Canal Side, Albany-road, Camberwell; sawing veneers, plank, deals, and battens, by steam-power; prices of sashes and frames at per foot, superficial, glased and hung with lines and weights complete.

	s. d.	s. d.
Single hung at per foot :—		
1½ ovolo	1 3 to 1	4
Double hung, 1½ ovolo	1 4 to 1	5
Double hung, 2 ovolo	1 5½ to 1	7½

	d.	d.
Sashes and frames at per foot superficial		
Single hung, 1½ ovolo	8½ to	9
Double hung, ditto	9 to	9½
2 inch ditto	10	

	d.
Doors at per foot superficial	
1½ inch pannel doors, from	4½
1½ Ditto ditto from	5½
2 Ditto ditto from	7

Shop fronts, staircases, handrails, equally low; Venetian blind lathes 1s. 4d. per 100 feet run superficial; blind stuff cut at 3s. per 100 feet superficial; beech quarters cut at 1s. 9d. per 100; turning in all its branches; doors of various sizes kept for sale. Terms, Ready Cash.

SIR WILLIAM BURNETT'S PATENT for the Preservation of Timber, Canvas, Cordage, Cotton, Woollen, &c., from Decay.

TESTIMONIALS.

From THOMAS GRAHAM, Esq., M.A., F.R.S., L. and E., Professor of Chemistry, University College, London.

"After making several experiments on wood prepared by the solution of chloride of zinc for the purpose of preservation, and given the subject my best consideration, I have come to the following conclusions.

"The wood appears to be fully and deeply penetrated by the metallic salt; I have found it in the centre of a large prepared paving block.

"The salt, although very soluble, does not leave the wood easily when exposed to the weather, or buried in dry or damp earth. It does not come to the surface of the wood by efflorescence, like the crystallizable salts. I have no doubt, indeed, that the greater part of the salts will remain in the wood for years, when employed for railway sleepers or such purposes. This may be of material consequence when the wood is exposed to the attacks of insects, such as the white ant in India, which I believe would be repelled by the poisonous metallic salt.

"After being long macerated in cold water, or even boiled in water, thin chips of the prepared wood retain a sensible quantity of the oxide of zinc; which I confirmed by *Mr.* Toplis's test, and observing that the wood can be permanently dyed from being charged with a metallic mordant.

"I have no doubt, from repeated observations made during several years, of the valuable preservative qualities of the solution of chloride of zinc, as applied in Sir. W. Burnett's process; and would refer its beneficial action chiefly to the small quantity of the metallic salt which is permanently retained by the ligneous fibre in all circumstances of exposure. The oxide of zinc [appears to alter and harden the FIBRE of wood, and destroy the solubility, and prevent the tendency to decomposition of the azotised principles it contains, by entering into chemical combination with them.

(Signed) "THOMAS GRAHAM."

" University College, 25th October, 1845.

From Professors BRANDE and COOPER.

" London, 4th November, 1845.

"SIR,—We have this day again examined the specimens of canvas and wood prepared according to the specification of your patent, and which, in the month of April, 1844, we placed in a damp cellar, where they have remained up to this date.

"We are now enabled satisfactorily to corroborate the favourable opinion expressed in our former report. The canvas remains amply protected from all fungous vegetation and rottenness, while a corresponding sample of the same piece, which had not been prepared by immersion in the solution of chloride of zinc, is entirely decayed, being mouldy, rotten, black, and in places resembles timber.

"We have also lately compared the strength of a fibre of a piece of canvas which we prepared according to your specification, in October, 1844, with that of the fibre of the same canvas, unprepared, and find that it has in that respect sustained no injury. We are therefore of opinion that your process will not, after any lapse of time, tend to deteriorate the strength of the fibres of the substances in question.

"In regard to the several samples of different species of wood above adverted to, each of which was cut into two, one half being imbued according to the directions of your specification with the dilute solution of chloride of zinc, while the other half was left in its original condition, we have also to make a favourable report, and to repeat our opinion of the efficacy of your process as a preventive of dry rot, and similar sources of decay; the unprepared specimens are manifesting symptoms of decay and mildew, while those which have been protected by your preparation are clean and sound.—(Signed) "WILLIAM THOMAS BRANDE,

"JOHN THOMAS COOPER."

"To Sir William Burnett, K.C.H., F.R.S., &c. &c."

Testimonials from numerous other parties may be obtained on application, personally or by letter, to the Secretary, and Specimens may be seen at the Office, 33, King William-street, London-bridge.

PREPARED FLOORING BOARDS.

AT REDUCED PRICES.

ALWAYS ON SALE, a LARGE ASSORTMENT of DRY PREPARED FLOORING BOARDS and MATCHED BOARDING of all sorts, planed to a parallel width and thickness, from ¼ inch to 1½ inch thick. Rough Boarding for Flats.

TIMBER, DEALS, OAK PLANKS, SCANTLINGS, SASH SILLS, &c.

Apply at W. CLEAVE'S Timber Yard, Smith-street, Westminster.

PREPARED FLOORING BOARDS.

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A. R., in calling the attention of builders and consumers, confidently presumes on his being able to supply them on such advantageous terms, as will ensure and merit their favours and approbation.

MUIR'S PATENT PLANING MACHINERY.

SAW MILLS, GILLINGHAM-STREET, PIMLICO.

TIMBER of any Size, PLANK, DEALS, and BATTENS, &c. Sawn on the most approved principle. Boards, &c., Prepared, Matched, and Grooved, by Muir's Patent Machinery. The Mills have all the advantages of navigation and water-carriage, being connected with the Thames by the Grosvenor-canal. Goods fetched from the docks and carted home free of charge.

Address to HENRY SOUTHAM,
Saw Mills,
Gillingham-street, Pimlico.

N.B. Estimates given for Sawing and Planing.

THE GENERAL WOOD CUTTING COMPANY, TIMBER and DEAL SAWING and PLANING MILLS, Belvedere-road, Lambeth, near Waterloo-bridge.—SAWING in all its branches executed with the greatest precision and despatch. PLANING by the most approved Machinery, reducing the Boards to a parallel width and thickness, and grooving or matching with undeviating accuracy. The operation economizes time, money, and material.

PORTLAND CEMENT does not vegetate in damp situations, requires no colouring, is perfectly hydraulic, and resists the action of frost. The price is now considerably reduced, and the public are thereby enabled to avail themselves of these distinct advantages.

Manufactured by J. B. WHITE and SONS, of Millbank-street, Westminster; and sold at their warehouses—Earl-street, Blackfriars; Druce's Wharf, Chelsea; Bell's Wharf, Paddington; and Albion Wharf, Deptford-bridge; at Seel-street, Liverpool; and Salmon and Co.'s, Dublin.

ROMAN CEMENT, &c.
REMOVAL.

THOMAS JOHN CROGGON

Begs to inform the Trade that he has removed to 8, LAWRENCE POUNTNEY-HILL and THREE CRANES WHARF, 69, Upper Thames-street.

Orders addressed to either place for ROMAN CEMENT of genuine quality will be executed with promptitude and the strictest regard to quality and economy.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced:—It will effectually resist Damp. It will never vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It never requires either to be painted or coloured. It will keep fresh and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for export. It is the only Cement that can be used with confidence by the Sea-side. It may be used in the hottest or coldest Climates at any season. It will adhere to any substance, even to Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and becomes perfect when other Cements begin to perish. It may be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, which may be papered over or painted directly. Roofs laid or pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first cost of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary and valuable advantages, nothing can approach it in point of economy.

Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

Specimens may be seen, and a Prospectus fully describing the Cement and its mode of application, together with a volume of Testimonials from every part of the Kingdom, may be obtained on application at the office of "The Builder," and of MANN and CO., SOLE AGENTS for the Patentees, 5, Maiden-lane, Queen-street, Cheapside, London: of whom also may be had,

JOHNS and CO.'S PATENT STONE-COLOUR STUCCO PAINT, expressly intended for Painting over exterior Walls of Houses that have been covered with Roman or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement; whereas MESSRS. JOHNS and CO.'S PATENT PAINT having an affinity for Stucco, binds itself with it, stopping the suction, thereby rendering the wall proof against weather, and in the finish producing a pure stone-like effect, producable by no other Paint whatever. It is cheap in its application,—and may be used by any Painter, in any climate, even in the most exposed Marine situations.

GREAVE'S LIAS CEMENT, stone-colour, free from vegetation, does not crack, and is well adapted for every description of modelling and casting.

GROUND LIAS LIME, for concrete, or as mortar for sewers, dock-walls, and hydraulic works generally; is superior to any other lime or cement.—Office, 2, South Wharf, Paddington, and Stratford-on-Avon.

Agent for Liverpool—Mr. Wylie, 56, Gloster-street.
Ditto, Manchester—Mr. J. Thompson, Back King-street.
Ditto, Chester—Mr. J. Harrison, Linen Hall-street.
N.B. Marble Floors. A large quantity of Vein and Black Marble on sale at reduced prices.

KEENE'S PATENT MARBLE CEMENT.

WITHOUT noticing CAUTIONS, which are as absurd as they are uncalled for, or disproving assertions, which carry with them their own refutation, the patentees of KEENE'S CEMENT venture to believe, that this material will very advantageously stand the test of comparison with any cement of a similar nature, however INVALUABLE, now before the public. They derive this opinion from its all but exclusive use in the new buildings north of Hyde-park, on the Brompton estate, and in many other public and private edifices, both in London and the country. Amongst others may be mentioned the works recently executed at the Colosseum, Regent's-park, where its hardness and beauty of appearance have caused it to be extensively used for skirting and other mouldings, in place of wood, for columns instead of marble, and as a substitute for stone in paving the floors of the corridors and conservatories.

Patentees and manufacturers, J. B. WHITE & SONS, Millbank-street, Westminster,

MARTIN'S FIRE-PROOF AND ORNAMENTAL CEMENT.

CAUTION.—Messrs. STEVENS and SON, Patentees, beg to caution their friends and the trade generally against confounding this invaluable Cement with others, erroneously said to be of the same description. S. and S. pledge themselves, that MARTIN'S CEMENT is totally dissimilar in composition and manufacture from every other, and, being a neutral compound, is not only free from chemical agency upon any substance with which it may come in contact, but completely resists the action of the strongest acids. They feel it a duty to direct attention to the following properties, which it exclusively possesses:—

1. It rapidly acquires the hardness of stone.
2. Unlike other internal cements, its hardness is uniform throughout its entire thickness.
3. Its surface (which may be made equal to that of the finest marble) NEVER THROWS OUT ANY SALT, and will receive paint in four days, without peeling, when put upon dry work.

It is peculiarly adapted as an internal stucco for walls, skirtings, architraves, mouldings, and enrichments of all kinds, to all of which purposes it has been extensively applied by Mr. Thomas Cubitt on the Grosvenor estate, &c.

For the above purposes, it possesses great advantages over wood, being more economical and durable, resisting fire, damp, and vermin.

For the floors of hall and fire-proof warehouses, its lightness, durability, and uniform surface give it an immense advantage over stone, being, at the same time, much more economical. The most satisfactory references can be given. To be had of the Patentees, Plaster of Paris and Cement Manufacturers, 186, DRURY LANE.

Agent for Liverpool and Manchester, Mr. R. PART, 28, Canning-place, Liverpool.

PLASTERING LIME, that may be used immediately without risk of blistering, manufactured expressly for Plastering, and sold at the usual price, at FORREST'S WHARF, Earl-street, Blackfriars. Sheds for the slacking and mixing of lime. Accommodation for loading and landing bricks, sand, ballast, &c.

WALLIS'S PATENT LIQUID WOOD KNOTTING.—This newly-discovered Liquid Composition which Messrs. Geo. and Thos. Wallis have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood, however bad, and preventing them eating through and disfiguring the paint above.

Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.

In the application, skill is not required; it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.

Sold wholesale and retail, by Messrs. G. and T. Wallis, Varnish, Japan, and Colour Manufacturers, No. 64, Long Acre. Price 20s. per gallon.

STEPHENS'S LIQUID OAK, MAHOGANY, ROSE, and SATIN WOOD STAINS, for Staining various sorts of Inferior Woods, so as to give them the appearance and character of the more costly and ornamental kinds; also for reviving the natural colour of Wood Carvings and Panellings, and other ornamental Wood Work, when such has become faded from age or other causes.

IN THE BUILDING AND DECORATING NEW CHURCHES, where it is desirable to give to the cheaper kind of Woods the appearance of Antique Oak, or to make Deal assume the character of Oak Panelling, whereby the effect of the more costly may be produced by the use of a cheaper material, these Stains will be found more effective than any means hitherto employed.

IN OLD MANSIONS AND HALLS, where the Wood Carvings and Panellings have faded, the applications of these Stains will be found to revive and bring back the rich natural colour, and which colour may be varied from the lighter to the deeper shades of the most Antique Oak.

The BIRCH WOOD, which has a fine natural grain, with little colour, is particularly suited to the application of these Stains; and the appearance which it assumes after Staining is so near that of the natural wood, that is is only when the grain and colour of the latter is particularly fine that it is preferred. Beech, Birch, Elm, Ash, and other Woods, English and Foreign, receive the Stains and produce various imitations.

For the exposed Timbers of the inside of the ROOFS of CHURCHES, for which north country Timbers and Deals are generally used, by brushing them over with the Stain, which operation is very rapidly, and of course economically, effected, the appearance of an Oaken Roof will be produced. For colouring the backs of the Seats, Pews, the fronts of Galleries, the Pulpit, &c., it is equally advantageous.

Prepared by HENRY STEPHENS, and may be obtained at 54, Stamford-street; at the Office of "The Builder," 2, York-street, Covent-garden, and in Manchester, at CRAKE'S MARBLE WORKS, Garratt-bridge, David-street, at which places specimens of their application may be seen.